

1940



WHEAT

OATS

BARLEY

FLAX

JUNIOR CO-OPERATIVE VARIETY TESTS



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FOREWORD

*By the President of Saskatchewan Co-operative
Wheat Producers Limited*

Ever since 1935 the Saskatchewan Wheat Pool has been collaborating with the University of Saskatchewan and the Dominion Experimental Farms and Stations in testing varieties of wheat and coarse grains to determine their weaknesses and their strengths under varying circumstances of soil and climate.

In this undertaking the help of hundreds of young men and young women on the farms of the province has been invaluable in doing the ground-work—the actual labor of the project.

The tests are carried out at points scattered all over the province. They are of a complicated and exacting nature. That these young people have carried out their work in a thorough and satisfactory manner is shown by the mass of valuable data which they have contributed to this project. Such information should be of great value to farmers on the land, who can benefit from a thorough piece of research work which they, individually, have not time to undertake.

It is a matter of pleasure to us that these young people have assisted in these testing operations. They have demonstrated their ability to become good co-operators by participating in such a worth-while effort involving infinite care and patience.

Without their valuable assistance these extensive comparative tests could not have been completed. To all these young men and young women who have given of their time and effort, we again express our sincere appreciation.

J. H. WESSON.

INTRODUCTION

“GUNS or butter.” This was the cry of the aggressor as he prepared to challenge the rights of man. The challenge came but Canada in her fight for freedom makes no such choice. Men, guns, butter and bread are among the contributions she freely gives in her battle against enslavement. For guns alone are not enough. The power behind the gun must be sufficient, the volley must be sustained.

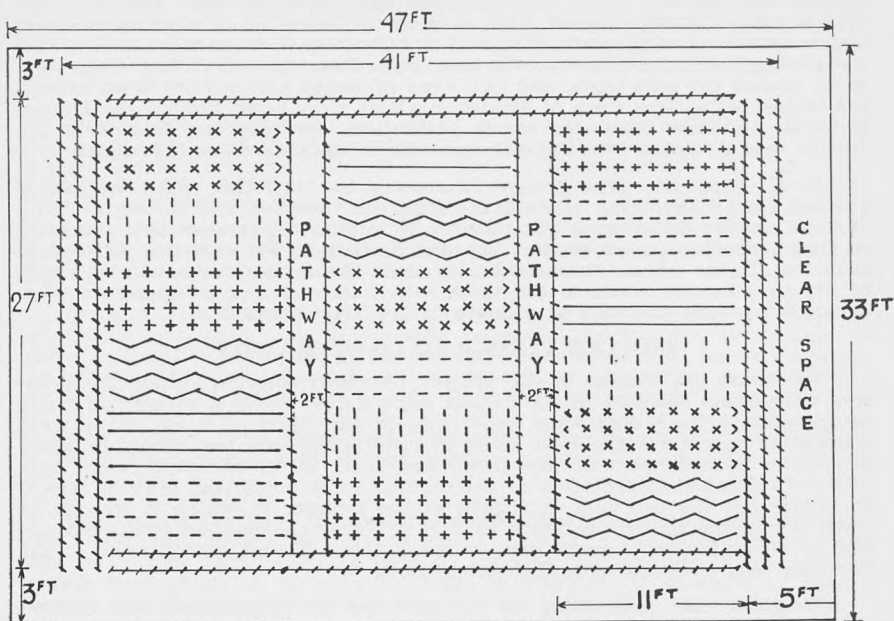
Bread, the food which from time immemorial has been the mainstay of man's existence, ranks high in that long list of resources which are at Canada's command. In the struggle for survival free men have long realized that food is of greater importance than the most powerful armaments. In the months that lie ahead hunger may become more deadly than bombs. A plentiful food supply may give more security than rings of steel and gun emplacements. The bulging granaries of Western Canada may yet prove to be a powerful factor in final victory.

But even as our guns must stand the terrific strains to which they are subjected, so must our food supply meet the need of those who constitute the great army of consumers. The high standard so necessary in modern implements of war must be equalled by the standard of the wheat we grow, for quantity alone is not enough. In times of war as in times of peace quality must be maintained.

In western Canada a number of new varieties of wheat and coarse grains have been developed during the past few years. Our farmers have been saved from the disastrous effects of stem rust epidemics, and the damaging results of other scourges have been greatly reduced. But the battle against the natural enemies of those who wrest their living from the soil is far from won. A variety may be resistant to stem rust, but in other characteristics it may be highly undesirable. Each year many tests are necessary to ascertain the reactions of new varieties under different soil and climatic conditions. Even the tests of one or two years do not suffice to determine the worthiness of a variety. Varying weather conditions bring varying results, and several years' testing are necessary before results can be determined with any measure of accuracy. These testing programmes are perhaps one of the most important phases in western agriculture. It is important today in time of war and will be equally important when peace has been restored and Canada's place in the markets of the world must be again secured and maintained. No matter what economic changes may take place, quality will always be a dominant factor controlling the demand for all commodities.

To assist our plant breeders in obtaining the information so vitally necessary to the maintenance of quality of western Canadian crops, and to aid our farmers in the choice of suitable varieties, the Saskatchewan Wheat Pool has again sponsored a Province-wide testing programme. The operation of a project of this nature necessitates the co-operation of hundreds of boys and girls who are willing to sacrifice much of their time and expend a considerable amount of labor. That the Wheat Pool organization has been able to secure the services of these junior co-operators is a glowing tribute to the youth of this western country. Year after year they have carried out this exacting work. Climatic conditions, plant diseases and the ravages of insects have often destroyed the results of their labours. That they have carried on in a spirit of true co-operation and loyalty is shown by an extract from a letter from one of these co-operators in which he states: “I feel I owe you hearty thanks for the opportunity you have given me in conducting these tests for the past three years.” This letter exemplifies the spirit of our farm youth—a spirit which their elder brothers are showing as they defend those principles fundamental to a world order in which man may live at peace with his neighbor, enjoying the freedom of his home and the fruits of his labors.

PLAN OF TEST



This plan shows the method employed in sowing the Common Wheat, Oats, and Barley Tests. As the Flax and Durum Tests consisted of only three varieties, the varieties were duplicated in each section. The distribution of the varieties was different in all cases, each test being separately randomized. The crossed lines between the pathways and around the test represent winter wheat.

LOCATION OF TESTS

For administration purposes the Saskatchewan Wheat Pool has divided the Province of Saskatchewan into sixteen districts. Each district is again divided into ten sub-districts. In the south-western part of Saskatchewan, Zone 1A, where no tests with coarse grains were conducted, and also in Zone 1B, two wheat tests were located in each sub-district. In all other areas there was at least one wheat test in each sub-district. In all, there were 227 tests with common wheat. There was also a limited test with Durums conducted in the central part of the grain-growing area of the province. Barley tests, numbering in all 47, were located in eastern and north-eastern areas, Zones 2A, 3A, 3B, 3C, 3D, and the eastern part of Zone 3E. 47 tests with flax varieties were conducted in the central and western regions, (Zones 2B and the northern part of Zone 1B), flax tests were also sown in the southern part of Zone 2A, and in the northern area of Zones 3D and 3E. Fifty-eight tests with oat varieties were located in the south-east, east-centre, north-east, and north-west, Zones 2A, 3A, 3B, 3C, 3D, and 3E. Thus in all, the 1940 testing project consisted of 385 tests located throughout the entire grain producing areas of Saskatchewan.

DESCRIPTION OF TESTS

Each test was sown in a modified Latin square, the size being 41 feet by 27 feet. This allowed for eighteen plots of four rows, each row being twelve inches apart. Allowance was also made for an outside protection of winter wheat. The whole test was divided into three sections with a pathway two feet wide between each section. In the common wheat, oats, and barley tests, in each of the three sections each variety was represented by one plot of four rows, each row being ten feet long. In the flax and durum tests,

as only three varieties were used, the varieties were duplicated in each section. Around the common wheat tests at a distance of about three feet from the outside row of winter wheat, two or more drill widths of oats were sown, which acted as a wind protection and saw-fly trap. Two or more drill widths of oats were sown, too, around the flax tests. Two rows of Victory Oats were sown around the oats tests, and two rows of Regal barley were sown around the barley tests. Two rows of Thatcher wheat were sown around the Durum tests. In all these cases the inside protection row was one foot from the outside row of winter wheat and the protection rows were one foot apart.

In all cases the arrangement of sowing the varieties under test made possible close comparison between the different varieties, and the significance of even smaller differences was possible by separately randomizing the plots so that throughout each project the distribution of the varieties differed in each test. In the wheat, oats and barley tests the seeds were sown at a depth of $2\frac{1}{2}$ to 3 inches, while in the tests with flax varieties, co-operators were instructed to sow the seed at a depth of 1 to $1\frac{1}{2}$ inches.

ORGANIZATION AND CO-OPERATION

To ensure the success of the project, carefully selected Junior Co-operators were again selected to act as test supervisors. While a number of these co-operators already had some experience in this class of work, many were conducting a test for the first time. In order that each test would be sown exactly in accordance with the prescribed plan, all co-operators were supplied with detailed information of the method to be employed, both in regard to laying out the test and in regard to the manner in which it was to be sown. To enable the co-operators to closely follow the method of randomization, a colored plan of each test, showing the different distribution of the varieties was enclosed with the instructions.

Weighing and assembling of the seed for the experiment was carried out in the Head Office of the Wheat Pool Organization in Regina. Since each test was separately randomized, it was necessary that particular care be exercised to ensure that the co-operator would be able to easily follow the method to be employed in sowing the different varieties. In preparing the seed 385 sets of envelopes were required, each set being stamped 1—2 inclusive. The names of the different varieties were then marked on the envelopes according to the randomization for each test. The envelopes were sorted according to varieties and sufficient seed of each variety was then weighed and placed in each envelope. After this was completed, the envelopes, plainly marked with the row number and the name of the variety were sorted in sets, each set arranged according to the randomization for that particular test and numbered according to the number allotted to the test. Thus the envelopes marked 1—4 contained the seed for the four rows of the first variety in each test to be sown in section one. Envelopes 5—8 contained seed for the four rows of the second variety in section one and so on down to the envelopes marked 69—72, which contained the seed of the variety to be sown last in section three of the test.

Sufficient winter wheat ($1\frac{1}{2}$ pounds) was also supplied for the outside protection rows. For the barley tests sufficient Regal barley was also supplied to be sown around the test, and for this purpose sufficient Victory oats was furnished for the oats tests. An extra supply of Thatcher wheat was also supplied for the two outside protection rows for the Durum tests.

In addition to the seed, 72 numbered wooden stakes were sent to each co-operator, 36 large stakes and 36 small stakes. The large stakes were used for the inside rows of each plot, and the small stakes for the outside rows of each plot. The packages of seed of the different varieties, the necessary stakes, and the winter wheat were then placed in a cardboard container, the container being numbered according to the number of the test, and mailed with the instructions to each co-operator.

During the growing season the co-operators were requested to furnish three reports covering the progress of the test. The first report which was to be completed and sent into the Head Office of the Saskatchewan Wheat

Pool by June 15th requested information in connection with the date of seeding, soil type, cultural treatment, soil moisture depth, and the amount of rainfall from the date of seeding to June 10th. Full details in regard to the dates of emergence of the different varieties, uniformity of stand, cutworm, wireworm and grasshopper damage, and also soil-drifting damage was requested in this report.

The Second Progress Report asked for information regarding dates of heading, insect damage not mentioned on the first report, details in regard to weed interference, and with the exception of the reports for the flax tests, it also asked for information in connection with the percentage of heads affected with covered smut, the number of loose smutted heads, and the percentage of stem rust which appeared on each variety. The reports covering the oats tests also required details in connection with the percentage of crown rust appearing on the different varieties.

The Final Report was required to be returned by September 1st. Reports covering wheat, oats and barley tests requested information in connection with the height of each row, straw strength, date when most heads were ripe, the percentage of bird damage, the percentage of shattering, and the date of harvesting. The percentage of stem rust was also required to be noted on this report. In order that rust infection would be accurately reported, a scale was also supplied which showed six degrees of rustiness computed on the basis of 100 representing the maximum surface covered by rust. This scale is shown on page 9.

The reports covering the flax tests requested information in connection with when most bolls were formed, average height of plant, date when most bolls were ripe, percentage of damage by wilt, percentage of damage by canker, percentage of damage by frost, percentage of damage by grasshoppers, percentage of weed interference, and date when harvested.

Space was provided on all of these reports for any remarks which the co-operator wished to make upon subjects not specifically asked for in the instructions.

During the growing season the tests were inspected by District Representatives of the Wheat Pool Organization. Each representative was supplied with report forms, a list showing the randomization of the tests in his district and copies of the rust scale. The district representatives' reports provided a very valuable independent verification of the reports from the Junior Co-operators.

Before the tests were harvested, further instructions were prepared and sent out to the test supervisors. In these instructions special attention was



The Wheat Test of John Almond Archer, of Vantage.

given to such points as the best time to harvest and how harvesting should be done. Each co-operator was requested to take particular care in the curing of the crop and in storing it until it was ready to be handed over to the local Wheat Pool elevator agent for shipment.

The co-operator was particularly requested to see that the two centre rows of each of the 18 plots were parcelled separately, together with the stakes identifying them. Only a small portion of the straw was required to be retained with the heads. After the crop had been harvested it was then required to be thoroughly dried and the 18 bundles placed in the required number of gunny sacks and shipped to Regina. Special shipping tags were forwarded to each Pool Elevator agent in order that identification could readily be established when the sheaves were received for threshing. The sheaves were threshed at the Head Office of the Saskatchewan Wheat Pool.

Each two centre rows of the different varieties in each test were threshed separately, the amount of grain being then weighed, giving yield in grams per plot. This information was entered on a specially prepared threshing report form. This report form enabled a record to be kept of the yield in grams of the two centre rows of the 18 plots in each test. A column was also provided for remarks in connection with color, etc. After each test had been threshed the yields from the plots of each variety were placed in one bag and thoroughly mixed in order that a uniform sample of the variety could be obtained. This sample was then cleaned, weighed in pounds per measured bushel, and the commercial grade was placed on each variety.

After all of the samples had been graded they were forwarded to Dr. R. K. Larmour, Professor of Chemistry, University of Saskatchewan, who tested them for protein percentage.

The project was again arranged and supervised by Dr. J. B. Harrington, Professor of Field Husbandry, University of Saskatchewan.

The compiling, summarizing, and statistical work was carried out at the Head Office of the Saskatchewan Wheat Pool in Regina, under the supervision of R. F. Haddrell.

ANALYSIS OF DATA

In order that a study could be made of the yielding capacity, disease resistance, and general characteristics of each variety when grown under the different soil and climatic conditions of Saskatchewan, all data were compiled and analysed by Cereal Variety Zones. The different Cereal Variety Zones are illustrated on the histograms appearing on pages 12 and 13 and are described below.

Zone	Prevailing Soil Type and Climatic Conditions.
1A.....	Open plains, brown soil, subject to frequent droughts.
1B.....	Open plains, brown soil, subject to more frequent droughts than 1A.
2A.....	Open plains, dark brown soil, subject to occasional droughts; more rainfall than 1A.
2B.....	Open plains, dark brown soil; slightly cooler, drier, and more subject to drought than 2A.
2C.....	Bench land, dark brown soil; cooler with shorter frost-free season and more precipitation than 2B.
2D.....	Open plains, dark brown soil, higher elevation and distinctly shorter frost-free season than 2B.
3A.....	Very dark brown and black soils; park land; more precipitation than 2A.
3B.....	Park land, deep dark soil, has distinctly shorter frost-free season and less rainfall than 3A, subject to frequent heavy damage from stem rust.
3C.....	Very dark brown and black soils, park belt; more rainfall than 2B, but less than 2A.
3D.....	Deep black soil; park area; distinctly shorter frost-free season and more rainfall than 2B.
3E.....	Very dark brown soil; park region, less precipitation than 3D. Much variation in frost-free season and rainfall.
4A.....	Mixed grey and degraded black soils; wooded region; short frost-free season like 3B.
4B.....	Grey soils, wooded area; shorter frost-free season and less rainfall than 4A.

WHEAT

NAMES AND ORIGIN OF VARIETIES USED IN THE TEST

The same varieties were used in each test. The names and origin of these varieties are given below.

Marquis.—Marquis is a descendant of a cross made in 1892 by officials of the Central Experimental Farm, Ottawa, Ontario, between an early ripening wheat, obtained from India under the name of Hard Red Calcutta, and Red Fife. It was isolated in 1903 by the late Sir Charles E. Saunders, then Dominion Cerealist, and was first sent to Western Canada for trial on branch farms in 1907.

Thatcher.—Thatcher was produced from a cross made in 1921 at the Minnesota Agricultural Experiment Station, University of Minnesota, St. Paul, Minnesota, between Marquis x Iumillo and Marquis x Kanred. The primary aim was to obtain a wheat of high quality for milling and baking purposes that was resistant to black stem rust and of desirable agronomic type. From one of the original crosses, Marquis x Iumillo a bread wheat type was obtained with a considerable degree of resistance to stem rust under field conditions. From the Marquis x Kanred cross, a spring wheat was selected of good milling and baking qualities that was immune to several forms of black stem rust, and of high yielding ability. Thatcher originated from a cross between these two.

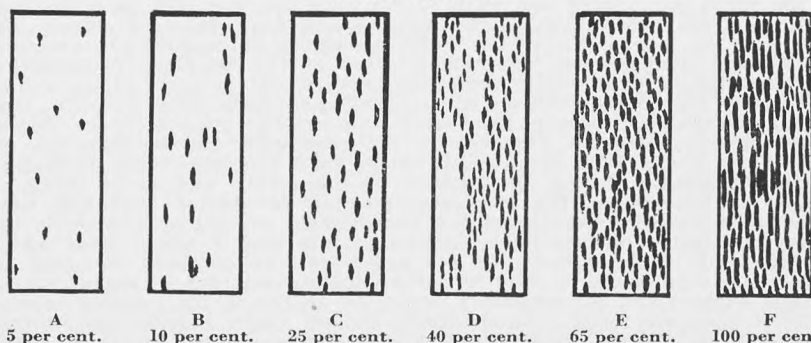
Apex.—Apex was developed at the University of Saskatchewan, Saskatoon, from the composite cross (H.44-24 x Double Cross) x Marquis, the Double Cross being a sister of Thatcher from the cross (Marquis x Kanred) x (Marquis x Iumillo). The new strain Sask. 1789 was used in these tests. This strain is slightly earlier, higher in yield and higher in bushel weight than the original stock Sask. 1703 which is in general use.

Renown.—This variety was produced at the Dominion Rust Research Laboratory, Winnipeg, Manitoba, from a cross between Reward and the rust-resistant variety H.44-24. The new strain R. L. 716.6 was used in these tests. This strain is slightly earlier, higher in yield and more resistant to leaf rust than the original stock R. L. 716.1 which is in general use.

Regent.—Regent was obtained from a cross between H-44 and Reward, made at the Dominion Rust Research Laboratory at Winnipeg. The original stock, R. L. 975.1, was used in these tests as there was insufficient seed available of the new strain, 975.6.

Rival.—Rival was developed at the North Dakota Agricultural Experiment Station from a cross between Ceres and a Hope-Florence hybrid. Florence closely resembles the wheat which Luther Burbank distributed under the name of Quality. This variety is now in use in North Dakota and Minnesota but to date is not licensed in Canada. It was included in the 1939 tests when some preliminary data were obtained. In order that further information may be available, Rival was again included in this testing project.

RUST SCALE

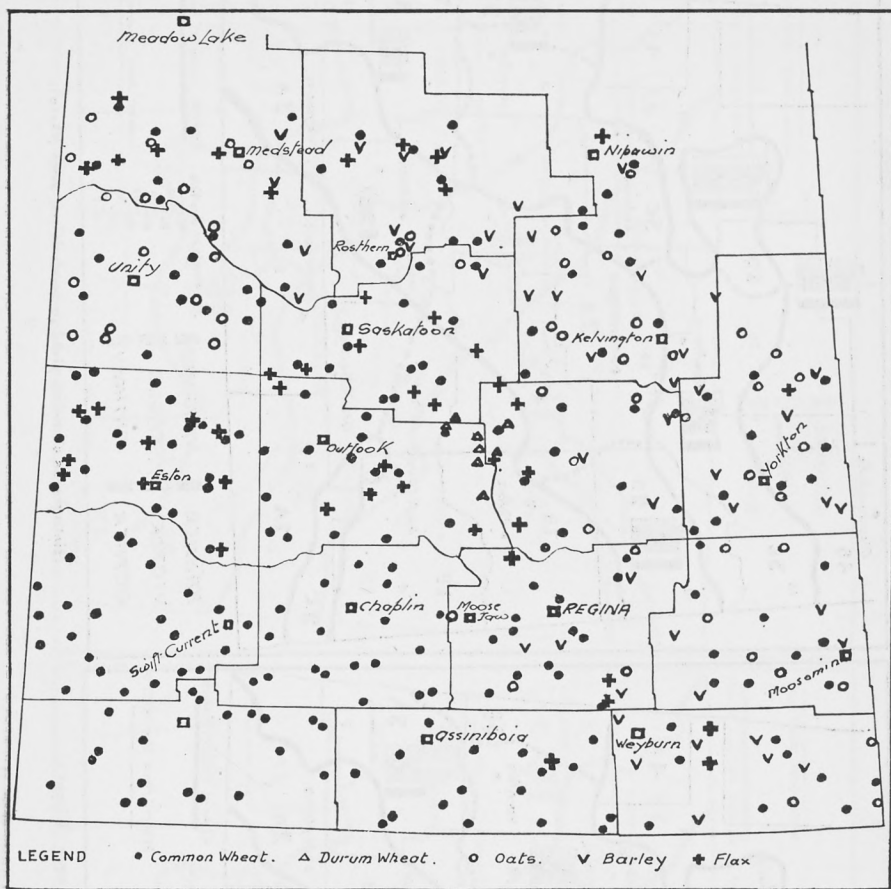


Scale for estimating rust, illustrating six degrees of rustiness used in estimating the percentage of stem-rust infection. The shaded spots represent rust, and the figures represent approximately the rust percentages computed on the basis of the maximum of surfaces covered by rust as shown in the 100 per cent. figure (F). Figure F in the diagram represents 37 per cent. of actual rust-covered surface and is arbitrarily selected as 100 per cent. The other percentages are in terms of Figure F.

GENERAL GROWING CONDITIONS

At the beginning of the season moisture conditions in Saskatchewan were far from satisfactory. The need of rain was most urgent in the east, north-east and north-centre. Fairly heavy rains fell across the south during the second week in May. In other areas, however, the moisture was only of a light scattered nature. The unsatisfactory situation had been further aggravated by soil drifting in the eastern, north-eastern, and central areas. Further rains were received during May but the moisture was by no means of a uniform nature. Grasshoppers were hatching, the most serious infestation being in the south-west where millions of these pests had made their appearance. Poisoning operations were being carried out but fear was expressed that severe damage could not be prevented. Although light to heavy showers were received early in June, the moisture was totally inadequate to prevent deterioration. Temperatures remained relatively low throughout the month but sharp declines occurred in a number of areas. Many fields of early wheat came into head at little height, and in some parts the late sown fields were also suffering severely. Grasshoppers continued their activities in the south-west and a number of points in close proximity to the Alberta border reported that all crops had been totally destroyed. During the early part of July, excessive heat and drought, and to a lesser degree grasshoppers and scattered hail storms, combined to cause a further sharp decline in condition. Declines were shown in all districts but most deterioration had occurred in a part of the south-west, a part of the south-east, and through the entire centre. Generally, summerfallowed crops were holding their condition fairly well, but all other fields were suffering severely. Grasshopper damage continued in the south-west, and scattered hail storms had damaged the crops in the south-centre and north-west. During the middle of July light to heavy showers fell in nearly all areas. A few days of high temperatures were reported but generally the weather was cool and showery. In the central area, where drought conditions had taken a heavy toll, the summerfallowed fields had improved considerably, but it was considered that little improvement to the stubbled fields was possible. At the end of July high temperatures were recorded over nearly the whole Province, the highest recordings being at Indian Head and Estevan with 98 degrees. Light to heavy showers, however, were more or less general and the moisture was of considerable benefit in counteracting the effect of the excessive heat. Generally weather conditions were ideal for good filling. Grasshoppers were now leaving the south-west and migrating into the centre. Hail storms had again occurred at scattered points. Stem rust was reported in the south-centre. Only susceptible varieties were infected and in most areas infection was not heavy. At the beginning of August the weather was cool and showery. In the north-centre and north-west only light precipitation had been received, and further moisture was required to ensure proper filling of the late sown grain. A part of the south-east and a part of the north-west reported some deterioration but in other areas the crop had more or less maintained its condition or was beginning to show some improvement. The most outstanding improvement was in the west-centre where prospects were exceedingly bright. Harvesting of the coarse grains crop had begun. Grasshoppers were active in the south and centre and most of the oats had been cut to save them from complete destruction. High temperatures were recorded during the middle of the month. Moose Jaw, with an official reading of 104, recorded the highest temperature. Throughout most of the Province precipitation had consisted of light widely scattered showers, but in parts of the south-east heavy rains were received which resulted in some interruption in harvesting. Generally, however, harvesting was making good progress, operations being particularly advanced in the south-east and south-centre. In these areas yields were turning out better than expected. Ideal harvesting weather continued during the balance of the month and early threshing returns indicated that the crop was yielding far better than had been anticipated. Sawflies were causing a considerable amount of damage in the south and centre but the most serious feature was a heavy frost which had occurred in the east-centre and north-east. To conclude, it might be said that Saskatchewan's 1940 wheat production was far in excess of the returns which could be reasonably hoped for earlier in the growing season. Lack of adequate moisture undoubtedly caused heavy deterioration during June. Summerfallowed crops withstood the adverse weather conditions fairly well but all other fields appeared to suffer severely. In some areas the crop headed out at little height but frequent showers during July and August resulted in excellent filling. This factor undoubtedly offset much of the damage which had occurred, and the final estimate of Saskatchewan's 1940 wheat crops shows that it was the second largest in the history of the province.

MAP SHOWING LOCATION OF TESTS

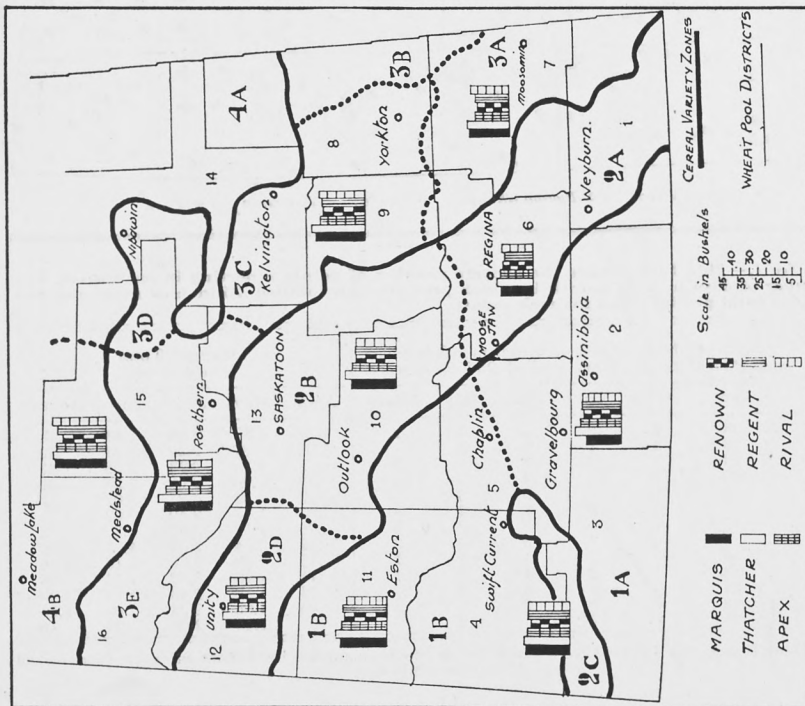


LEGEND • Common Wheat. Δ Durum Wheat. ○ Oats. ∇ Barley + Flax

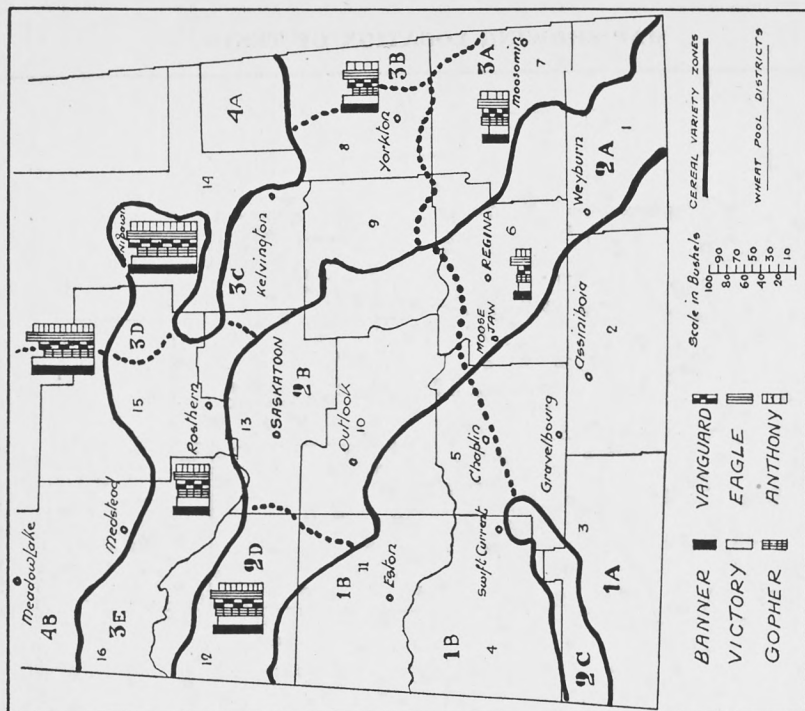
TABLE No. 1.—This Table shows the average number of points reporting in each zone, the number of days in each month in which precipitation totalled .25 inch or more and the average total precipitation for each month.

Cereal Variety Zone	Number of Points Reporting	Number of days in each month in which precipitation totalled .25 inch or more.					Average Total Precipitation				
		April	May	June	July	August	April	May	June	July	August
1A.....	38	2	2	3	3	1	1.57	1.33	2.88	2.84	.63
1B.....	28	3	1	3	3	—	1.56	.87	2.29	2.11	.32
2A.....	23	1	3	2	3	2	.77	1.78	2.28	2.58	1.47
2B.....	30	—	1	2	4	1	.22	.93	2.06	3.28	.60
2C.....	4	2	1	5	5	—	2.22	.85	4.05	3.02	.17
2D.....	9	—	2	3	2	—	.33	1.39	2.40	2.02	.02
3A.....	17	—	1	2	3	3	.26	1.53	2.37	3.32	2.02
3B.....	8	—	1	3	5	3	.12	.74	2.67	4.27	1.70
3C.....	16	—	1	4	4	1	.10	.90	2.76	3.13	1.26
3D.....	8	—	2	4	2	1	.15	1.28	3.32	1.74	.86
3E.....	23	—	1	3	3	—	.15	1.10	2.40	1.92	.49
4A.....	2	—	2	2	1	3	.05	1.06	2.24	.49	1.75
4B.....	2	—	3	3	2	—	.01	1.45	2.07	.93	.16

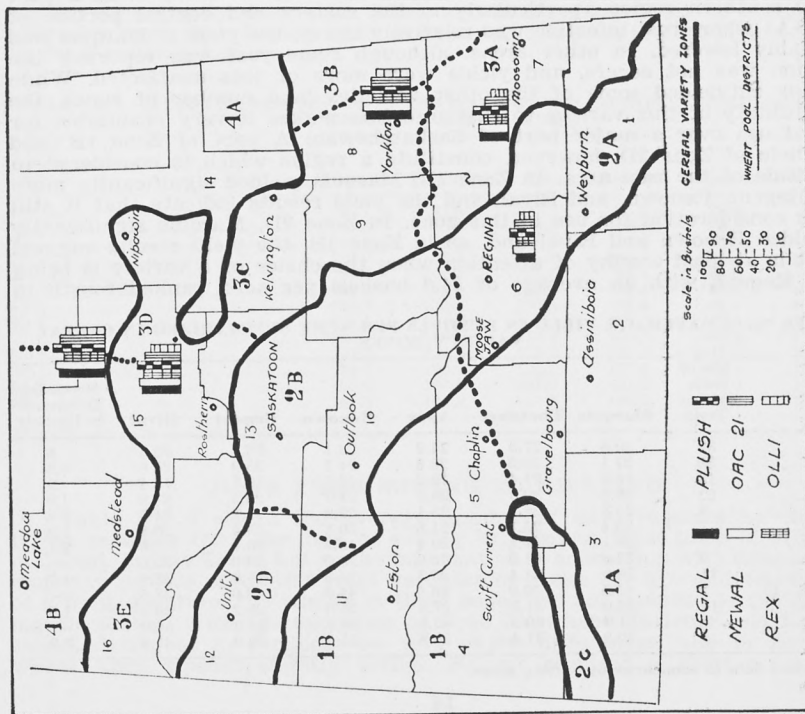
Note.—These figures are obtained from precipitation reports compiled by Agents of Saskatchewan Pool Elevators Limited.



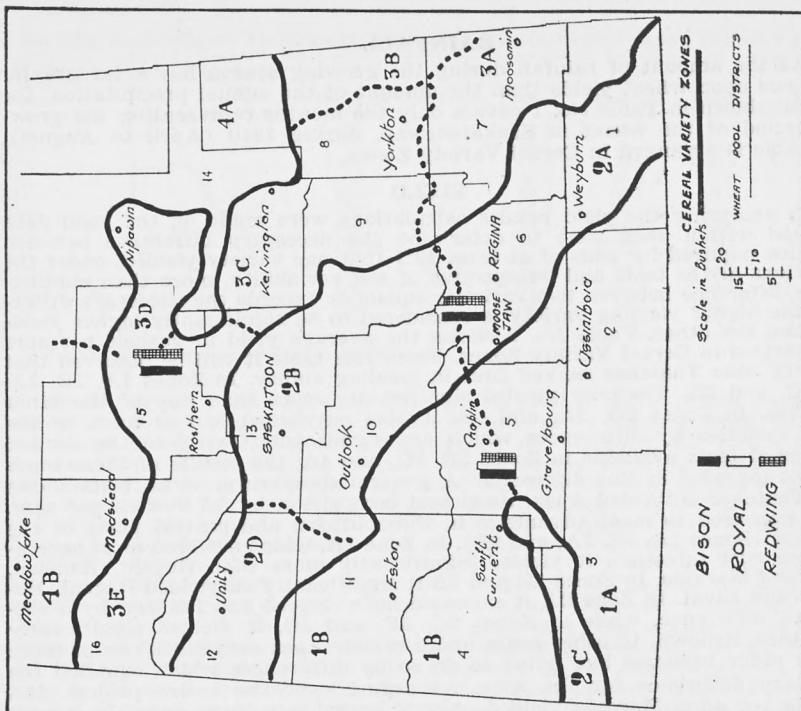
Histograms showing yield in bushels per acre (Wheat).



Histograms showing yield in bushels per acre (Oats).



Histograms showing yield in bushels per acre (Barley).



Histograms showing yield in bushels per acre (Flax).

RAINFALL

As the amount of rainfall during the growing season has a far greater influence upon wheat yields than the amount of the annual precipitation, the rainfall shown in Table No. 1 covers only the months representing the growing period of the wheat in Saskatchewan, during 1940 (April to August). The table is arranged in Cereal Variety Zones.

YIELD

In analyzing the yield results calculations were made on the yield data obtained within each zone to determine the necessary difference between varieties required for odds of at least 19:1 that one variety yielded, under the conditions of the tests and irrespective of soil variability, more than another. If the difference between two varieties equals or exceeds the necessary difference the higher yielding variety is considered to be significantly higher yielding than the other. Table No. 2 shows the average yield in bushels per acre summarized in Cereal Variety Zones. From this table it will be observed that in every zone **Thatcher** ranked first in yielding ability. In Zones 1A, 1B, 2A, 2C, 3C, and 3E, **Thatcher** yielded significantly more than any of the other varieties. In Zones 2D, 3A, and 4B, it also outyielded one or more of the other varieties by differences which are significant. Owing to the limited number of tests available in Zones 3B, 3D, and 4A, the results of these zones are not included in this discussion. A general comparison of all tests shows that **Thatcher** outyielded **Apex**, its closest competitor, by 3.3 bushels per acre. **Apex** appeared to most advantage in the southern and central parts of the province (Zones 1A, 1B, 2A, and 2B). In Zone 1A, which suffered most severely from rust infection, it yielded significantly more than **Regent**, **Renown**, **Rival** and **Marquis**. In Zones 1B and 2B it significantly outyielded **Regent**, **Renown**, and **Rival**. In Zone 2A it exceeded both **Regent** and **Renown** by a significant difference, while in Zones 2C, 3E, and 4B, it yielded significantly more than **Renown**. In other zones under review **Apex** outyielded one or more of the other varieties but failed to do so by differences which equalled the necessary difference for the zone. Averaging over the entire project 25.4 bushels per acre, **Marquis** yielded only .2 bushel less than **Apex**. In a part of the southern region (particularly in the eastern and central portion of Zone 1A) where rust infection was relatively heavy, the yield of **Marquis** was noticeably lowered. In other areas, although some rust was reported, the infection was not severe, and yields were more or less unaffected. While **Marquis** outyielded some of the other varieties in a number of zones, the susceptibility of this variety to rust infection makes it very unsuitable for general use over a major part of Saskatchewan. A part of Zone 1B, and the whole of Zone 2D, however, constitute a region which is considered to be outside of the rust area. In Zone 1B, **Marquis** yielded significantly more than **Regent**, **Renown**, and **Rival**, and the yield results indicate that it still merits consideration for use in this zone. In Zone 2D, **Marquis** significantly outyielded **Renown** and **Rival** and, as in Zone 1B, the yield results suggest that it is at least worthy of attention when the choice of a variety is being made. **Regent**, with an average of 24.6 bushels per acre, ranked fourth in

TABLE No. 2.—AVERAGE YIELD IN BUSHELS PER ACRE SUMMARIZED IN CEREAL VARIETY ZONES

Cereal Variety Zone	No. of Satisfactory Tests	Marquis	Thatcher	Apex	Renown	Regent	Rival	Necessary Difference in Bushels
1A.....	32	20.8	27.3	24.2	22.1	23.1	22.5	.8
1B.....	38	27.1	29.6	26.8	24.7	25.9	23.6	.8
2A.....	13	18.9	21.4	19.2	17.7	16.7	18.4	.9
2B.....	22	26.3	30.0	26.2	23.9	24.1	23.9	1.0
2C.....	8	25.3	26.7	25.1	22.9	24.7	24.7	1.4
2D.....	7	23.1	25.1	21.6	20.8	23.4	20.8	1.8
3A.....	7	23.1	24.1	20.4	18.9	20.1	22.6	2.1
3B*.....	2	32.0	41.0	32.0	33.0	33.0	35.0	—
3C.....	11	28.6	31.4	26.3	25.0	25.6	26.9	1.7
3D*.....	2	45.5	50.0	46.5	44.0	42.0	38.5	—
3E.....	14	28.0	31.7	27.3	25.0	26.2	26.5	1.4
4A*.....	1	51.0	60.0	42.0	48.0	54.0	54.0	—
4B.....	5	30.0	31.4	29.8	25.6	29.0	31.8	3.9

*Insufficient data to summarize by variety zones.

TABLE No. 3.—AVERAGE YIELD PERCENTAGE OF MARQUIS BY CEREAL VARIETY ZONES.

Cereal Variety Zone	Marquis	Thatcher	Apex	Renown	Regent	Rival
1A.....	100	131.3	116.3	106.3	111.1	108.2
1B.....	100	103.2	98.9	91.1	95.6	87.1
2A.....	100	113.2	101.6	93.7	88.4	97.4
2B.....	100	114.1	99.6	90.9	91.6	90.9
2C.....	100	105.5	99.2	90.5	97.6	97.6
2D.....	100	108.7	93.5	90	101.3	90
3A.....	100	104.3	88.3	81.8	87	97.8
3B*.....	100	128.1	100	103.1	103.1	109.4
3C.....	100	109.8	92	87.4	89.5	94.1
3D*.....	100	109.9	102.2	96.7	92.3	84.6
3E.....	100	113.2	97.5	89.3	93.6	94.6
4A*.....	100	117.6	82.4	94.1	105.9	105.9
4B.....	100	104.7	99.3	85.3	96.7	106

* Insufficient data to summarize by variety zones.

yielding ability. In the following zones it outyielded the varieties named by differences which exceeded the necessary differences for the zones: 1A, Renown and Marquis; 1B, Renown and Rival; 2A, Renown; 2C, Renown; 2D, Renown, Rival and Apex; 3A, Renown. In connection with the performance of this variety, however, it should be pointed out that the seed used was not the new strain which is now being increased. **Rival** ranked fifth in yield, averaging 24.2 bushels per acre. It outyielded Renown by a difference of .6 bushel. In Zone 1A it outyielded Marquis by a significant difference. In Zone 2A it yielded significantly more than Regent, while in Zones 2C, 3C, 3E, and 4B it outyielded Renown by significant differences. Its best yielding propensity, however, was shown in Zone 3A where it yielded significantly more than Apex, Regent, or Renown. Averaging over the entire project 23.6 bushels per acre, **Renown** was the lowest yielding variety. Only in three zones did Renown yield significantly more than any of the other varieties. These were in Zone 1A (where rust infection was most severe), and Renown outyielded Marquis by a significant difference, and in Zone 1B where Renown yielded significantly more than Rival, and in Zone 2A where it yielded significantly more than Regent. Only in Zone 2A, however, is Renown considered to be a suitable variety.

TABLE No. 4.—AVERAGE NUMBER OF DAYS FROM SOWING TO RIPENING SUMMARIZED IN CEREAL VARIETY ZONES

Cereal Variety Zone	Marquis	Thatcher	Apex	Renown	Regent	Rival
1A.....	96.7	95.8	96.2	96.1	95.5	96.5
1B.....	99.9	99.0	99.2	98.9	98.8	99.5
2A.....	96.0	94.7	95.7	94.8	95.0	95.5
2B.....	107.2	105.7	105.7	105.7	105.4	106.3
2C.....	97.6	94.6	96.4	96.1	96.0	97.3
2D.....	105.6	105.0	104.2	104.4	104.4	106.2
3A.....	101.3	100.4	100.9	99.8	99.6	101.3
3B*.....	109.5	106.5	107.5	107.0	109.5	106.5
3C.....	112.3	110.1	110.4	109.5	108.9	110.9
3D*.....	121.0	118.0	118.5	117.0	116.0	120.5
3E.....	104.1	103.2	103.1	102.8	102.7	103.7
4A*.....	103.0	103.0	103.0	103.0	103.0	103.0
4B.....	107.8	104.8	105.8	103.2	102.6	105.2

*Insufficient data to summarize by variety zones.

DAYS FROM SOWING TO RIPENING

Table No. 4 shows the average number of days required by the different varieties from the date of sowing to ripening. This table is arranged in Cereal Variety Zones, but as the information in connection with comparative maturity periods of the different varieties in Zones 3B, 3D, and 4A, is only of a limited nature, the results in these zones are not included in the following discussion. With the exception of Zone 2A where Thatcher and Renown exceeded Regent in earliness by very slight differences, and in Zone 2D where Apex ripened slightly earlier, Regent required a shorter maturity

period than any of the other varieties. Although some variation occurred in the different zones, taking the project as a whole, the differences in maturity periods of Regent, and Renown and Thatcher were only .2 day and .3 day respectively, while the maturity period of Apex was only .7 day longer than Regent. This general comparison shows that Marquis required an average of 101.8 days from sowing to ripening. Only in two zones was Marquis earlier than another variety. These were, Zone 2D where Rival was .6 day later, and Zone 3A where Rival equalled Marquis in maturity period. An average of all tests, however, shows that Rival was .5 day earlier than the Marquis variety.

HEIGHT OF PLANTS

In Table No. 5 the height in inches of each variety is shown by Cereal Variety Zones.

Taking the project as a whole Rival excelled in height. In the central and northern zones it was decidedly taller than any of the other varieties, but in part of the south Marquis exceeded Rival in height by slight differences. Generally, however, Marquis ranked second and exceeded the other varieties in all zones. Although some variation appeared between the comparative heights of Apex, Renown, Regent, and Thatcher in the different zones, a general comparison showed that Apex, with an average height of 31.2 inches, was taller than the other varieties by the following differences: Renown, .3 inch; Regent, .6 inch; and Thatcher, .7 inch.

TABLE No. 5.—AVERAGE PLANT HEIGHT IN INCHES SUMMARIZED IN CEREAL VARIETY ZONES.

Cereal Variety Zone	Marquis	Thatcher	Apex	Renown	Regent	Rival
1A.....	29.5	28.7	28.9	28.8	28.8	29.3
1B.....	30.7	29.6	30.8	30.1	30.0	31.7
2A.....	29.1	28.2	28.9	28.5	27.7	28.8
2B.....	34.9	32.9	33.7	33.5	33.2	35.4
2C.....	30.6	29.1	29.3	29.5	29.5	29.8
2D.....	33.4	32.6	33.0	33.8	32.8	34.6
3A.....	29.0	28.7	29.5	29.0	29.0	30.7
3A *.....	37.5	35.0	35.5	34.5	34.0	36.5
3C.....	34.0	32.2	32.7	32.8	32.0	34.7
3D *.....	39.5	36.5	38.5	38.0	36.5	40.5
3E.....	34.7	33.2	33.6	33.7	32.4	35.0
4A *.....	39.5	38.5	38.0	38.0	38.0	40.0
4B.....	33.2	30.2	32.6	31.8	32.4	35.6

*Insufficient data to summarize by variety zones.

STRAW STRENGTH

Straw strength was reported on a basis of 0 to 10, 10 being recorded if the plants were straight and erect. If the plants tended to lean slightly or were slightly curved at the base, the straw strength would be shown as 9. The greater the lean, the greater proportion of leaning plants, the lower the figure shown, until, if the plants were flat upon the ground, they would receive 0 for straw strength. Table No. 6 shows the strength of straw of the different varieties in each Cereal Zone based on the markings 0 to 10 as mentioned above. In most of the zones Thatcher either equalled or exceeded the other varieties, and in others, where it was inferior to some of the varieties, the difference was not of a marked nature. Taking the project as a whole, Renown and Rival tied in straw strength. Considerable variation, however, appeared in the different zones and in the south-east Zones 2A, 3A, and 3B, Renown was distinctly inferior to a number of varieties. Regent showed superiority in the north-east, particularly in Zone 3D where moisture conditions were most satisfactory. Rival showed fairly good straw strength in the south, but in a number of the northern zones, particularly in Zones 3D and 4B, it was inferior to most of the other varieties. Marquis was also fairly satisfactory in the south but was inferior to many of the other varieties in a number of zones. Marquis showed distinct inferiority in Zone 3B. This inferiority may be attributed to rust infection. In Zone 1A, however, where stem rust was most severe, it was fairly satisfactory in this characteristic. In a number of zones, Apex either tied with one or

TABLE No. 6.—COMPARISON OF STRAW STRENGTH SUMMARIZED IN CEREAL VARIETY ZONES.

Cereal Variety Zones	Marquis	Thatcher	Apex	Renown	Regent	Rival
1A.....	8.5	8.5	8.2	8.5	8.2	8.5
1B.....	9.1	9.2	8.8	9.0	8.8	9.1
2A.....	8.5	8.8	8.5	8.6	8.7	9.0
2B.....	9.1	9.1	8.5	9.0	8.9	9.1
2C.....	9.3	9.2	9.4	9.4	9.4	9.1
2D.....	8.4	9.0	8.0	9.2	9.0	9.0
3A.....	9.4	9.5	8.5	9.1	8.6	9.3
3B.....	8.1	9.3	9.2	8.8	9.0	9.0
3C.....	8.3	8.6	8.1	8.7	8.7	8.5
3D.....	8.6	9.1	8.7	9.3	9.5	8.0
4A.....	8.5	9.2	8.2	9.3	8.8	8.7
4A *.....	9.3	9.6	9.0	9.3	9.0	9.3
4B.....	8.8	9.5	8.9	9.2	9.4	8.4

*Insufficient data to summarize by variety zones.

more of the other varieties in showing the weakest straw, or was definitely inferior. Generally, however, the inferiority was not of a marked nature, and in Zone 3B, where rust was in evidence particularly on the Marquis variety, Apex ranked second to Thatcher and was superior to the other varieties.

WEIGHT PER MEASURED BUSHEL

Table No. 7 shows the average weight per measured bushel arranged in Cereal Variety Zones. All weights were taken on cleaned samples. Renown outweighed the other varieties in most of the zones. The exceptions were in Zone 1A, where it tied with Apex but outweighed the other varieties, and in Zones 2C, 3A and 3C where Marquis outweighed Renown by slight differences. Taking the project as a whole, Renown averaged 63.3 lbs. per measured bushel, outweighing the other varieties by the following differences: Apex, .4 lb.; Marquis, .7 lb.; Thatcher and Regent, 1.1 lbs., and Rival, 1.2 lbs. With the exception of Zone 1A where it equalled Renown in weight, Apex closely followed Renown in all zones. In Zone 1A where rust infection was most severe, Marquis was outweighed by Renown, Apex and Rival, and tied in bushel weight with Thatcher and Regent. In most of the other zones, however, Marquis outweighed Thatcher, Regent, and Rival. It showed particularly good weight in Zones 2C and 3A where it outweighed all other varieties. A general comparison over the whole test shows that Thatcher and Regent tied in bushel weight. Thatcher, however, showed a slight advantage in the south-east, while Regent outweighed Thatcher by a small margin in the western zones. Taking the project as a whole, Rival was low in weight. It showed superiority to some of the other varieties in the southern zones but in the centre and north it was outweighed by all varieties. In Zone 4B it was decidedly low, being outweighed by the other varieties by differences which ranged from .5 lb. to 1.3 lbs.

TABLE No. 7.—BUSHEL WEIGHT IN POUNDS (CLEANED) BY CEREAL VARIETY ZONES.

Cereal Variety Zone	Marquis	Thatcher	Apex	Renown	Regent	Rival
1A.....	61.5	61.5	62.6	62.6	61.5	62.1
1B.....	63.1	62.5	63.2	63.7	62.5	62.4
2A.....	62.6	61.6	62.5	62.8	61.2	61.9
2B.....	62.4	62.7	62.9	63.5	62.7	62.1
2C.....	64.3	63.1	64.0	64.1	63.3	63.2
2D.....	61.9	61.0	61.3	62.8	61.4	60.2
3A.....	63.0	61.5	62.3	62.7	61.5	62.5
3B *.....	62.5	63.0	63.7	64.0	63.0	62.2
3C.....	63.3	62.9	62.9	63.2	62.9	62.3
3D *.....	63.5	63.0	63.2	63.7	63.5	62.7
3E.....	62.1	61.6	62.6	62.8	61.9	61.4
4A *.....	58.0	61.0	55.0	59.0	59.5	58.0
4B.....	64.1	63.5	63.8	64.2	63.4	62.9

*Insufficient data to summarize by variety zones.

COMMERCIAL GRADES

Table No. 8 shows the percentage of commercial grades placed on each variety. From the table it will be observed that Renown graded better than the other varieties. Apex showed superiority to all varieties in some of the zones, and over the whole test it ranked second to Renown. In Zone 1A where rust infection was most severe Marquis was inferior to all varieties, with the exception of Regent, but taking the tests as a whole it placed third. Although some variations occurred in the different zones, over the whole project little difference was apparent between the grades of Thatcher and Rival, although of the two, Rival was superior. In nearly all zones Regent graded low and taking the test as a whole it was inferior to all varieties.

TABLE No. 8.—PERCENTAGE OF COMMERCIAL GRADES BY VARIETIES

Variety	1 Hd.	1°	2°	3°	4°	5	6	Fd.	4 Spec.
Marquis.....	43.4	21.9	26.5	5.4	2.1	.5	.2	—	—
Thatcher.....	29.8	38.7	15.6	12.4	2.5	—	.5	—	.5
Apex.....	41.0	31.5	12.8	4.8	2.0	—	—	—	7.9
Renown.....	48.8	26.4	17.5	5.6	1.0	—	.5	—	.2
Regent.....	28.8	30.4	25.8	13.4	1.1	—	—	—	.5
Rival.....	34.6	27.9	24.2	11.4	1.2	.5	—	—	.2

PROTEIN CONTENT

The results in Table No. 9 show that Regent, Renown and Thatcher averaged higher in protein than the other varieties. Apex and Rival were almost equal while Marquis was low. In the zones where sufficient data are available the lowest protein averages were in Zone 2C. The highest protein averages for zones were in Zone 2D, where moisture conditions were far from satisfactory.

TABLE No. 9.—PROTEIN CONTENT IN PERCENTAGE SUMMARIZED IN CEREAL VARIETY ZONES.

	Marquis	Thatcher	Apex	Renown	Regent	Rival
1A.....	14.3	15.4	15.3	15.6	15.7	15.0
1B.....	14.1	14.8	14.6	15.1	15.2	14.6
2A.....	14.4	15.2	15.0	15.2	15.4	14.8
2B.....	14.0	14.9	14.6	15.4	15.4	14.8
2C.....	13.8	14.5	14.3	14.9	15.0	14.3
2D.....	15.3	15.7	15.6	15.8	15.9	15.3
3A.....	14.7	15.4	15.0	15.7	15.6	15.1
3B *.....	12.5	13.8	13.2	13.8	13.9	13.1
3C.....	14.6	15.2	14.9	15.5	15.8	15.1
3D *.....	10.0	10.2	10.3	10.7	10.3	10.3
3E.....	14.8	15.1	14.9	15.3	15.5	14.7
4A *.....	15.7	15.9	16.3	15.8	16.2	15.1
4B.....	14.4	15.0	15.1	15.0	15.1	14.4

*Insufficient data to summarize by Cereal Variety Zones.

SUMMARIZATION

ACCORDING TO CEREAL VARIETY ZONES

Probably the most useful summarization of the data from this series of variety tests is that which shows for each cereal variety zone the data on the different varieties for each important characteristic. In the following tables and discussions the data have been studied on the basis of these Cereal Variety Zones.

Readers are reminded that the results of tests during a single year in a zone, no matter how comprehensive they may be, do not constitute satisfactory information upon which to base the choice of a variety to use. The results of several years of tests are needed. Often a less worthy variety suffers less from the weather conditions in a given season than does a superior variety. Therefore some reference to previous tests is made in the final comments on the results in each zone.

In this connection the reader is referred to the Saskatchewan Grain Variety Recommendations for 1941, a printed circular available free on request from the Extension Department, University of Saskatchewan, Saskatoon, or the Saskatchewan Department of Agriculture, Regina, or your nearest Dominion Experiment Station or the Saskatchewan Wheat Pool, Regina.

In analyzing the yield results calculations were made on the yield data obtained within each zone to determine the "necessary difference" required between varieties for odds of at least 19:1 that one variety yielded, under the conditions of the tests and irrespective of soil variability, more than another. If the difference between two varieties equals or exceeds the necessary difference it is considered to be important; that is the higher yielding variety is considered to be significantly higher yielding than the other. The reader will be interested to know that modern variety tests, such as these, are planned in a mathematical manner in order (1) that the test will be fair, with all varieties placed and treated as nearly as possible alike, and (2) that the test will be sensitive and reveal statistically any varietal superiority that exists.

CEREAL VARIETY ZONE 1A

Yield.—Thatcher excelled in yielding ability significantly outyielding all other varieties in the zone. Apex was second in yield and the actual difference between Apex and Regent, Renown, Rival, and Marquis exceeded the necessary difference for the zone. Although third in yielding ability, Regent failed to outyield Rival by a difference which equalled the necessary difference, but yielded significantly more than Renown or Marquis. Rival failed to outyield Renown by a difference which was significant but significantly outyielded Marquis. Renown also outyielded Marquis by a difference which exceeded the necessary difference for the zone. **"Earliness."**—Regent was the earliest maturing variety in this zone but it exceeded Thatcher by only .3 day. The other varieties, however, were later than Regent by the following differences: Renown, .6 day; Apex, .7 day; Rival, 1 day, and Marquis, 1.2 days. **Height.**—Marquis was the tallest variety but exceeded Rival by only .2 inch. Marquis was taller than the other varieties by the following differences: Apex, .6 inch; Renown and Regent, .7 inch, and Thatcher, .8 inch. **Straw Strength.**—Inferiority in straw strength was noticeable in all varieties in this zone. Marquis, Thatcher, Renown and Rival tied, but Apex and Regent, which also tied, showed only a slight inferiority. **Weight.**—Apex and Renown were equal, exceeding Rival by .5 lb., and Marquis, Thatcher and Regent by 1.1 lbs. **Grades.**—In a number of tests, particularly those located in the central part of the zone, the presence of a superabundance of shrunken kernels was in evidence, causing a decided loss in grades to all varieties. Generally, taking the zone as a whole, however, Renown ranked first but was closely followed by Apex and Rival. Despite bleached kernels which appeared in a number of samples, Thatcher was fourth in grades. The presence of lightweight and green kernels in a number of samples of Regent resulted in this variety grading lower than Thatcher. A considerable number of shrunken kernels (the result of rust infection) appeared in nearly all samples of the Marquis variety which placed last. **Rust.**—Some stem rust infection appeared on all varieties but with the

exception of Marquis the infection was only of a light nature. The amount of infection which was in evidence on the Marquis variety, however, ranged from 10% to 100%, the most severely infected tests being located in the south-central part of the zone. **Smut.**—No covered smut was reported, but in three tests a few loose smutted heads were in evidence in the Marquis variety. **Shattering.**—No outstanding differences appeared between Thatcher, Apex, and Renown. Marquis and Regent showed a slightly higher loss, while the loss suffered by Rival was almost twice than sustained by any of the other varieties.

General Results.—Generally, the results in this zone indicate in a very striking manner the advantages which rust-resistant wheat has brought to Western Canadian farmers. At least a part of the zone has in the past suffered severely from stem rust infection, and in 1940 heavy infection appeared on the stems of the susceptible Marquis variety in the tests located in the south-central part of the zone, and taking the area as a whole, a difference of 6.5 bushels per acre appears between Thatcher and Marquis. Despite its slightly lower weight and commercial grades when compared to some of the other varieties, the performance of Thatcher again demonstrates its worthiness for use in this zone. The high yield, bushel weight, and commercial grades of Apex make this variety also worthy of use in 1A. That these two varieties are satisfactory in this area is confirmed by the results of tests conducted in 1937, 1938, and 1939, when their general performance proved to be superior to other varieties. In fact these results contributed in no small measure to Thatcher and Apex being officially recommended for general use in 1941 in Zone 1A.

TABLE No. 10.—SUMMARIZED RESULTS FOR ZONE 1A

	Marquis	Thatcher	Apex	Renown	Regent	Rival
Yield in bushels per acre.....	20.8	27.3	24.2	22.1	23.1	22.5
Days from seeding to ripening..	96.7	95.8	96.2	96.1	95.5	96.5
Height of plant in inches.....	29.5	28.7	28.9	28.8	28.8	29.3
Straw strength.....	8.5	8.5	8.2	8.5	8.2	8.5
Bushel weight in pounds.....	61.5	61.5	62.6	62.6	61.5	62.1
Commercial grades in percent-						
age.....						
1 Hard	44.0	53.0	60.0	63.0	38.0	60.0
1°	41.0	25.0	31.0	28.0	34.0	28.0
2°	6.0	13.0	3.0	3.0	19.0	3.0
3°	3.0	3.0	3.0	3.0	3.0	3.0
4°	3.0	—	—	—	—	3.0
6	3.0	—	—	—	—	—
Sp. 4	—	6.0	3.0	3.0	6.0	3.0

Necessary Difference—.8 bushel.

CEREAL VARIETY ZONE 1B

Yield.—Thatcher again excelled in yield, yielding significantly more than the other varieties. Marquis ranked second in yielding ability. It failed to outyield Apex, however, by a difference which equalled the necessary difference for the zone, but yielded significantly more than the other varieties. Apex was third in yield, outyielding Regent, Renown, and Rival by differences which exceeded the necessary difference. Regent ranked fourth in yield significantly outyielding Renown and Rival, while Renown yielded significantly more than Rival. **"Earliness."**—No marked differences appeared in the maturity periods of any of the varieties in this zone. Regent excelled but was closely followed by Renown, Apex, and Thatcher, in the order named. Rival and Marquis were later than Regent by .7 day and 1.1 days respectively. **Height.**—Rival was the tallest variety in the zone exceeding the other varieties by the following differences: Apex, .9 inch; Marquis, 1 inch; Renown, 1.6 inches; Regent, 1.7 inches, and Thatcher, 2.1 inches. **Straw Strength.**—Thatcher excelled; Marquis and Rival tied and showed only slight inferiority to Thatcher. Renown was slightly inferior to Marquis and Rival. Apex and Regent tied and were inferior to the other varieties. **Weight.**—Renown exceeded the other varieties by the following differences: Apex, .5 lb.; Marquis, .6 lb.; Thatcher and Regent, 1.2 lbs., and Rival, 1.3 lbs. **Grades.**—Although some green and bleached kernels appeared in a number of samples and in two tests a small percentage of black point was in evidence, Apex excelled in commercial grades. Some shrunken, bleached and green kernels were noticeable in the Marquis variety, but the latter closely

followed Apex in grades. Despite some bleached and green kernels, Renown also graded well. Some shrunken, green, and bleached kernels were in evidence in a number of samples of the Thatcher, Regent and Rival varieties. Little difference appeared in the commercial grades placed on these varieties, although of the three Regent was inferior. **Rust.**—Some stem rust infection was in evidence throughout the greater part of the zone. The amount of infection appearing on the stems of the Marquis variety ranged from 5% to 30%. Light infection also appeared in a few tests on the stems of Thatcher and Rival. Apex, Renown and Regent appeared almost free of infection. **Smut.**—No covered smut was reported but a few loose smutted heads were in evidence in the Marquis variety in one test and in the Apex variety in two tests. **Shattering.**—Rival showed approximately twice as much loss from shattering as any of the other varieties.

General Results.—Thatcher yielded well, showed relatively good bushel weights but was inferior to most of the other varieties in commercial grades. In the past this zone has escaped severe losses by stem rust but the amount of stem rust infection appearing on the Marquis variety may well be a distinct danger signal. While in the 1940 test the performance of Marquis has been reasonably satisfactory, the results would indicate that at least some of the rust resistant varieties have characteristics equal or superior to the standard variety. Apex yielded comparatively well and showed good bushel weight and commercial grades. Of the two varieties, Renown and Regent, the superiority of Renown in straw strength, bushel weight, and commercial grades, appears to more than compensate its inferiority in yield. With the exception of height, Rival showed no outstanding characteristics, and similarly to 1939 when it was first used in these Variety Tests, it was the lowest yielder in the zone. Thatcher, despite its inferiority to most of the other varieties in commercial grades, taking the results of this test with those of 1937, 1938, and 1939, yielded well and appears to merit consideration when the choice of a variety is being made. Marquis and Apex show some characteristics which are worthy of attention, but the results of previous tests would indicate that Apex is generally superior and its rust-resistant qualities are a distinct advantage. Shortly before this report was completed the line dividing Zone 1A from Zone 1B was moved westward so that it now runs north from Zone 2C just west of Gull Lake and Kerrobert to Zone 2D. The new line places in 1A practically all of the old 1B that was subject to stem rust losses. The 1941 official cereal variety recommendations list Marquis, Apex and Thatcher for 1B as would be expected from the results of these tests.

TABLE No. 11.—SUMMARIZED RESULTS FOR CEREAL VARIETY ZONE 1B

	Marquis	Thatcher	Apex	Renown	Regent	Rival	
Yield in bushels per acre.....	27.1	29.6	26.8	24.7	25.9	23.6	
Days from seeding to ripening..	99.9	99.0	99.2	98.9	98.8	99.5	
Height of plant in inches.....	30.7	29.6	30.8	30.1	30.0	31.7	
Straw strength.....	9.1	9.2	8.8	9.0	8.8	9.1	
Bushel weight in pounds.....	63.1	62.5	63.2	63.7	62.5	62.4	
Commercial grades in percent-							
age.....	1 Hard	72.0	54.0	74.0	69.0	56.0	59.0
	1°	16.0	36.0	18.0	23.0	18.0	31.0
	2°	10.0	5.0	8.0	8.0	23.0	10.0
	3°	2.0	5.0	—	—	3.0	—

Necessary Difference—.8 bushel.

CEREAL VARIETY ZONE 2A

Yield.—Thatcher led in yielding ability, outyielding the other varieties by differences which exceeded the necessary difference for the zone. Apex ranked second in yield. It failed to outyield Marquis or Rival by a difference which equalled the necessary difference, but yielded significantly more than Renown and Regent. Marquis was third in yield. The actual difference between Marquis and Rival failed to equal the necessary difference for the zone but the difference between Marquis and Renown and Regent exceeded the necessary difference. Renown ranked fifth in yield, yielding significantly more than Regent, the lowest yielder. **"Earliness."**—Only slight difference appeared between the maturity periods of Thatcher, Renown, and Regent. Thatcher, however, was slightly earlier than the other two varieties and

nearly one day earlier than Rival, one day earlier than Apex, and 1.3 days earlier than Marquis. **Height.**—Marquis was the tallest variety, exceeding the others by the following differences: Apex, .2 inch; Rival, .3 inch; Renown, .6 inch; Thatcher, .9 inch, and Regent, 1.4 inches. **Straw Strength.**—Rival excelled but was closely followed in sequence by Thatcher, Regent, and Renown. Marquis and Apex tied and showed slight inferiority to the other varieties. **Weight.**—Renown led in weight but outweighed Marquis and Apex by only .2 lb. and .3 lb. respectively. Renown, however, outweighed the other varieties by the following differences: Rival, .9 lb.; Thatcher, 1.2 lbs., and Regent, 1.6 lbs. **Grades.**—Nearly all samples contained some bleached, green, or immature kernels. No outstanding difference appeared in the commercial grades placed on Renown, Marquis, Apex, or Rival, although of these varieties, Renown appeared to show a slight advantage. Thatcher and Regent were also fairly equal in grades with Thatcher showing some superiority. **Stem Rust.**—Some stem rust appeared on the Marquis variety in a number of tests but the percentage of infection was not of a heavy nature. **Smut.**—No covered smut was reported and only in one test were a few loose smutted heads in evidence; these appeared in the Marquis variety. **Shattering.**—The loss by shattering to Rival and Marquis was only slightly more than the loss sustained by any of the other varieties.

General Results.—While stem rust was not a serious factor during the past year, its presence in this zone where heavy losses have frequently occurred is significant, and the continued use of a rust-resistant variety is of the utmost importance. Of the rust-resistant varieties, the yielding ability of Thatcher and the general performance of Apex indicates the worthiness of these varieties for use in this zone. This is confirmed by the results of tests conducted in 1937, 1938, and 1939. Rival also shows some merit as it did in 1939 but it appears to have no outstanding characteristic which would justify its use at the expense of either Thatcher or Apex. The official 1941 recommendations include with Thatcher and Apex the variety Renown for this zone.

TABLE No. 12.—SUMMARIZED RESULTS FOR ZONE 2A

	Marquis	Thatcher	Apex	Renown	Regent	Rival
Yield in bushels per acre	18.9	21.4	19.2	17.7	16.7	18.4
Days from seeding to ripening.....	96.0	94.7	95.7	94.8	95.0	95.5
Height of plant in inches.....	29.1	28.2	28.9	28.5	27.7	28.8
Straw strength.....	8.5	8.8	8.5	8.6	8.7	9.0
Bushel weight in pounds.....	62.6	61.6	62.5	62.8	61.2	61.9
Commercial grades in percent- age.....						
1 Hard	38.0	31.0	38.0	31.0	31.0	38.0
1°	31.0	31.0	38.0	54.0	15.0	38.0
2°	23.0	15.0	8.0	—	38.0	8.0
3°	—	15.0	8.0	15.0	8.0	16.0
4°	8.0	8.0	8.0	—	8.0	—

Necessary difference—.9 bushel.

CEREAL VARIETY ZONE 2B

Yield.—Thatcher again led in yield, outyielding all other varieties by a difference which exceeded the necessary difference for the zone. Marquis ranked second in yielding ability but the difference between Marquis and Apex was only of a very slight nature. Both Marquis and Apex yielded significantly more than Regent, Renown, or Rival. None of these latter varieties outyielded the other by a difference which equalled the necessary difference. **"Earliness."**—Regent excelled in this zone but the difference in the maturity period of this variety and Thatcher, Apex, and Renown was only .3 day. Marquis and Rival, however, were later than Regent by differences of 1.8 days and .9 day respectively. **Height.**—Rival was the tallest variety in this zone exceeding the others by the following differences: Marquis, .5 inch; Apex, 1.7 inches; Renown, 1.9 inches; Regent, 2.2 inches, and Thatcher 2.5 inches. **Straw Strength.**—Marquis, Thatcher, and Rival tied, being slightly superior to Renown and Regent. Apex was inferior to the other varieties. **Weight.**—Renown excelled, outweighing the other varieties by the following differences: Apex, .6 lb.; Thatcher and Regent, .8 lb.; Marquis, 1.1 lbs., and Rival, 1.4 lbs. **Grades.**—A number of

samples of all varieties contained some shrunken, green, or bleached kernels. Many of the samples of Thatcher, Apex and Rival also showed kernels affected by black point. Marquis appeared to have less defects of this nature than the other varieties, and although it weighed less than Renown it almost tied with the latter variety in showing the highest grades. Thatcher and Regent were also fairly equal in grades, although of the two, Thatcher had a slight advantage. Apex ranked fifth in grades, while Rival graded lower than any of the other varieties. **Stem Rust.**—Rust infection appearing on the stems of the Marquis variety ranged from 5% to 50%. In a few tests traces of stem rust also appeared on the other varieties, but the amount of infection was only of a light nature. **Smut.**—No covered smut was reported but in three tests some loose smutted heads were in evidence in the Marquis variety, and in one or two tests a small percentage of infected heads appeared in the Apex, Renown, and Regent varieties. **Shattering.**—Rival sustained a loss by shattering which was approximately one-third more than the loss suffered by the other varieties.

General Results.—The outstanding yield of Thatcher more than offset its inferiority to some of the other varieties in bushel weight and commercial grades. The general performance of Apex also merits attention. While outyielded by Thatcher, it significantly outyielded the other rust-resistant varieties and apart from being somewhat weak in straw, its other characteristics were reasonably satisfactory. Despite rust infection Marquis yielded fairly well and in bushel weight and commercial grades it was relatively satisfactory. No outstanding differences appear in this test between the general performance of Renown, Regent and Rival. In both the 1939 and 1940 tests Regent and Rival almost tied in yielding ability and were equal in most characteristics. Neither of these varieties show any particular merit. Considering the results for the past four years, Thatcher is distinctly the best variety for use in this zone. No outstanding difference appears between a number of characteristics of Apex and Renown, although of the two varieties Apex is distinctly the higher yielder. Marquis shows some merit in the 1940 test but its susceptibility to rust infection is a handicap and its performance during the tests conducted from 1937 to 1940 shows it is inferior to the other varieties. Arising from these results and those obtained by the experiment stations the official recommendations for 1941 list Thatcher, Apex and Renown for Zone 2B.

TABLE No. 13.—SUMMARIZED RESULTS FOR ZONE 2B

	Marquis	Thatcher	Apex	Renown	Regent	Rival
Yield in bushels per acre.....	26.3	30.0	26.2	23.9	24.1	23.9
Days from seeding to ripening...	107.2	105.7	105.7	105.7	105.4	106.3
Height of plant in inches.....	34.9	32.9	33.7	33.5	33.2	35.4
Straw strength.....	9.1	9.1	8.5	9.0	8.9	9.1
Bushel weight in pounds.....	62.4	62.7	62.9	63.5	62.7	62.1
Commercial grades in percent-						
age.....						
1 Hard	57.0	48.0	38.0	52.4	42.9	33.3
1 ^a	28.0	24.0	43.0	38.1	38.1	47.6
2 ^a	5.0	18.0	19.0	9.5	14.3	14.3
3 ^a	5.0	10.0	—	—	4.7	4.8
4 ^a	5.0	—	—	—	—	—

Necessary difference—1.0 bushel.

CEREAL VARIETY ZONE 2C

Yield.—Thatcher outyielded all other varieties by differences which either equalled or exceeded the necessary difference for the zone. Marquis ranked second in yielding ability but failed to yield significantly more than any of the other varieties with the exception of Renown. Apex was third in yield but this variety also failed to yield significantly more than Regent and Rival. It outyielded Renown, however, by a difference which exceeded the necessary difference. Regent and Rival tied in yielding ability and both of these varieties yielded significantly more than Renown. **"Earliness."**—Thatcher excelled, ripening earlier than the other varieties by the following differences: Regent, 1.4 days; Renown, 1.5 days; Apex, 1.8 days; Rival, 2.7 days, and Marquis, 3 days. **Height.**—Marquis was the tallest variety exceeding the other varieties by the following differences: Rival, .8 inch; Renown

and Regent, 1.1 inches; Apex, 1.3 inches, and Thatcher, 1.5 inches. **Straw Strength.**—Apex, Renown, and Regent tied, but no marked difference appeared between any of the varieties. Marquis, Thatcher, and Rival showed slight inferiority to each other in the order named. **Weight.**—Marquis outweighed all other varieties. The difference, however, between Marquis and Renown and Apex was only .2 lb. and .3 lb. respectively, but Marquis exceeded the other varieties by the following differences: Regent, 1 lb.; Rival, 1.1 lbs., and Thatcher, 1.2 lbs. **Grades.**—In one or two tests some shrunken or green kernels were in evidence and in one test the sample of the Apex variety showed traces of black point. Generally, however, the samples contained no defects and grades were excellent. Apex and Rival tied in showing superiority in commercial grades. Marquis and Renown were also equal, being slightly inferior to Apex and Rival. Little difference also appeared between the grades of Regent and Thatcher although of the two, Regent was slightly superior. **Stem Rust.**—Light stem rust infection appeared on the Marquis variety. **Smut.**—No covered smut was reported. In one test the Apex variety showed a few loose smutted heads. **Shattering.**—Only a small loss was reported and no outstanding difference appeared between the loss sustained by any of the varieties.

General Results.—Thatcher excelled in yield and although it showed inferiority to some of the other varieties in bushel weight and commercial grades, the differences were not of a marked nature. Marquis and Apex showed little difference in yield. Although Marquis weighed slightly more than Apex, the latter variety was superior to Marquis in commercial grades. Of these two varieties, the performance of Apex appears to show most merit. Regent and Rival tied in yield but although it weighed slightly less, Rival showed marked superiority to Regent in commercial grades. Renown was low in yield but excelled in bushel weight. It tied with Marquis, however, in commercial grades, grading lower than Apex and Rival. Considering the results of the last four years, Thatcher has outyielded the other varieties and is at least one variety suitable for use in this zone. During the period 1937 to 1940, Apex and Marquis have tied in yield but the results of the 1940 test would suggest that of these two varieties, Apex has a slight advantage. Both show some merit and are worthy of consideration when the choice of a variety is being made. Officially Thatcher and Apex are recommended.

TABLE No. 14.—SUMMARIZED RESULTS FOR ZONE 2C.

	Marquis	Thatcher	Apex	Renown	Regent	Rival
Yield in bushels per acre.....	25.3	26.7	25.1	22.9	24.7	24.7
Days from seeding to ripening..	97.6	94.6	96.4	96.1	96.0	97.3
Height of plant in inches.....	30.6	29.1	29.3	29.5	29.5	29.8
Straw strength.....	9.3	9.2	9.4	9.4	9.4	9.1
Bushel weight in pounds.....	64.3	63.1	64.0	64.1	63.3	63.2
Commercial grades in percent-						
ages.....						
1° Hard	87.5	75.0	87.5	87.5	62.5	87.5
1°	—	12.5	12.5	—	25.0	12.5
3°	12.5	—	—	12.5	12.5	—
4°	—	12.5	—	—	—	—

Necessary difference—1.4 bushels.

CEREAL VARIETY ZONE 2D

Yield.—Thatcher excelled in yield. With the exception of Regent it outyielded all varieties by differences which exceeded the necessary difference for the zone. The difference between Regent and Marquis was only of a slight nature and both of these varieties outyielded Apex by a difference which barely equalled the necessary difference for the zone. Both Regent and Marquis, however, significantly outyielded Renown and Rival. Apex also outyielded the two latter varieties, but failed to do so by differences which equalled the necessary difference for the zone. **"Earliness."**—Apex excelled, ripening slightly earlier than Renown or Regent, .8 day earlier than Thatcher, 1.4 days earlier than Marquis, and 2 days earlier than Rival. **Height.**—Rival exceeded all other varieties by the following differences: Renown, .8 inch; Marquis, 1.2 inches; Apex, 1.6 inches; Regent, 1.8 inches, and Thatcher, 2 inches. **Straw Strength.**—Renown showed superiority over the other varieties. Thatcher, Regent, and Rival tied and were only slightly

inferior to Renown. Marquis ranked fifth, while Apex was weaker than any of the other varieties. **Weight.**—Renown also outweighed all other varieties by the following differences: Marquis, .9 lb.; Regent, 1.4 lbs.; Apex, 1.5 lbs.; Thatcher, 1.8 lbs., and Rival, 2.6 lbs. **Grades.**—Nearly all samples of all varieties contained some bleached, green, or shrunken kernels, but Renown excelled in grades, the other varieties ranking in the following order: Marquis, Apex, Rival, Regent, and Thatcher. **Stem Rust.**—No rust infection was reported in this zone. **Smut.**—All varieties were free from covered smut but a few loose smutted heads were noticed in the Apex and Regent varieties. **Shattering.**—Rival suffered approximately three times the loss sustained by the other varieties.

General Results.—In each test during the past four years Thatcher has excelled in yield in this zone. In the 1940 test it again demonstrated its yielding ability and although it was outweighed and showed inferiority to a number of the other varieties in commercial grades, it would appear at least to be one variety worthy of use in this zone. Rival showed no outstanding characteristic either in this test or in the test conducted in 1939. Regent, although yielding fairly well, was considerably inferior to both Apex and Renown in commercial grades. In this test, Marquis has also yielded relatively well, and shows fairly good weight and commercial grades, but ripened later than most of the other varieties which is important over a considerable proportion of this zone. Since one year's test is far from conclusive, it should be mentioned that the combined tests of 1937, 1938, 1939, and 1940 show Thatcher and Apex distinctly better than Renown or Marquis. However, as Marquis is still well liked and is fairly safe from rust damage in 2D, the official recommendations include Marquis with Thatcher and Apex.

TABLE No. 15.—SUMMARIZED RESULTS FOR ZONE 2D.

	Marquis	Thatcher	Apex	Renown	Regent	Rival
Yield in bushels per acre.....	23.1	25.1	21.6	20.8	23.4	20.8
Days from seeding to ripening..	105.6	105.0	104.2	104.4	104.4	106.2
Height of plant in inches.....	33.4	32.6	33.0	33.8	32.8	34.6
Straw strength.....	8.4	9.0	8.0	9.2	9.0	9.0
Bushel weight in pounds.....	61.9	61.0	61.3	62.8	61.4	60.2
Commercial grades in percent-						
age.....1 Hard	14.3	—	14.3	14.3	—	—
2°	57.1	42.8	42.8	71.4	42.8	57.1
2°	14.3	28.6	42.9	—	42.9	28.6
3°	14.3	28.6	—	14.3	14.3	14.3

Necessary difference—1.8 bushels.

CEREAL VARIETY ZONE 3A

Yield.—Thatcher excelled in yield but failed to yield significantly more than Marquis or Rival. It exceeded all other varieties, however, by differences which exceeded the necessary difference for the zone. Marquis, although second in yield also failed to significantly outyield Rival but yielded significantly more than the other varieties. Apex and Regent practically tied in yielding ability but both varieties failed to outyield Renown by differences which equalled the necessary difference. **"Earliness."**—Regent was the earliest maturing variety. Only a slight difference of .2 day, however, appeared between this variety and Renown, but Regent ripened earlier than the other varieties by the following differences: Thatcher, .8 day; Apex, 1.4 days, and Marquis and Rival, 1.7 days. **Height.**—Rival exceeded the other varieties by the following differences: Apex, 1.2 inches; Marquis, Renown, and Regent, 1.7 inches; and Thatcher, 2 inches. **Straw Strength.**—Thatcher excelled being followed in sequence by Marquis, Rival, Renown, Regent, and Apex. **Weight.**—Marquis exceeded all other varieties. The differences between Marquis and Renown, Rival and Apex, were only .3 lb., .5 lb. and .7 lb. respectively, but Marquis outweighed both Thatcher and Regent by 1.5 lbs. **Grades.**—Some green, bleached, or shrunken kernels appeared in a number of samples of all varieties. Black point was also noticeable, the Marquis, Thatcher, Apex, and Rival varieties being particularly affected. **Rust.**—In a number of tests stem rust was in evidence on the Marquis variety, the amount of infection being estimated as from 5% to 40%. **Smut.**—All varieties were free from loose or covered smut infection.

Shattering.—No loss to any of the varieties was reported in this zone.

General Results.—While Thatcher failed to yield significantly more than Marquis and was inferior to the latter variety in bushel weight and commercial grades, in this zone where stem rust infection has in the past taken a heavy toll, the widespread use of a rust-resistant variety is of paramount importance. Of the rust-resistant varieties, Thatcher, although generally inferior in weight and grading lower than the other varieties shows good yielding ability and has a number of other characteristics which are reasonably satisfactory. In this test Rival yielded well and was comparatively satisfactory in bushel weight and commercial grades. Little difference appeared between the yields of Apex and Regent and although Apex was superior in weight, only very slight difference appeared in the commercial grades placed on these varieties. In the 1940 test Renown was the lowest yielder but exceeded both Apex and Regent in weight and grades. Consideration of the results of tests conducted annually since 1937 shows that Thatcher has proved its worthiness for use in this zone. Only in 1938 when Renown excelled in yield was Thatcher outyielded by any of the other varieties. Since its inclusion in the tests, Rival has proved to be fairly satisfactory but as the results of two years are by no means conclusive, further information is required before any definite recommendation can be made in connection with this variety. Consideration of the results of the 1940 test would indicate that Apex is somewhat superior to Regent and Renown, but although in this test Renown is low in yield it exceeds Apex in both bushel weight and commercial grades. In two out of the four tests conducted since 1937, Renown has proved to be superior to Apex in yield and when the four years' tests are considered, both of these varieties appear to have some characteristics superior to Thatcher which are worthy of consideration when the choice of a variety is being made. It will be a matter of satisfaction to the junior co-operators to know that their tests proved of much value to the official committee on cereal varieties when they met to decide on the 1941 recommendations for this as well as the other zones. They recommended Thatcher, Apex and Renown for Zone 3A.

TABLE No. 16.—SUMMARIZED RESULTS FOR ZONE 3A

	Marquis	Thatcher	Apex	Renown	Regent	Rival
Yield in bushels per acre.....	23.1	24.1	20.4	18.9	20.1	22.6
Days from seeding to ripening..	101.3	100.4	100.1	99.8	99.6	101.3
Height of plant in inches.....	29.0	28.7	29.5	29.0	29.0	30.7
Straw strength.....	9.4	9.5	8.5	9.1	8.6	9.3
Bushel weight in pounds.....	63.0	61.5	62.3	62.7	61.5	62.5
Commercial grades in percentage.....						
1 Hard	25.0	—	13.0	37.0	12.0	37.0
1°	25.0	62.0	62.0	38.0	63.0	38.0
2°	38.0	25.0	12.0	12.0	12.0	13.0
3°	—	—	13.0	—	13.0	—
4°	12.0	13.0	—	13.0	—	12.0

Necessary difference—2.1 bushels.

CEREAL VARIETY ZONE 3B

Only two tests reached maturity in this zone, and the results are too inadequate to attach any importance to them on a zonation basis. The tests which were available were conducted by Lorne Boyd Pollock of Hassan, and Philip Pasioka of Arran. The results of these tests are shown on Page 47. In order that some information may be available to the reader, we give below an extract from the report covering the results of tests conducted in this zone in 1939 when the same varieties were used. "The results of this test indicate that Thatcher is at least one of the best varieties for use in this zone. This is confirmed by the results of previous tests, Thatcher having outyielded all other varieties in two out of three years prior to 1939, but the general performance of Renown in the 1939 test suggests it is deserving of some consideration in the choice of a variety for this area. Rival also showed an advantage in some characteristics over the other varieties, but further tests are necessary before any definite information is available in connection with this variety." The Saskatchewan Cereal Variety Committee in their 1941 recommendations advise the use of Apex, Renown, and Thatcher in this zone.

CEREAL VARIETY ZONE 3C

Yield.—Thatcher yielded significantly more than any of the other varieties. Marquis was the second highest yielder. It outyielded Rival by a difference which was barely significant, and outyielded the other varieties by a difference which exceeded the necessary difference for the zone. Rival ranked third in yielding ability but outyielded only Renown by a difference which is significant. The actual difference between Apex, Regent, and Rival failed to equal the necessary difference. **"Earliness."**—All varieties required over 100 days to reach maturity. Regent excelled, ripening earlier than the other varieties by the following differences: Renown, .6 day; Thatcher, 1.2 days; Apex, 1.5 days; Rival, 2 days, and Marquis, 3.4 days. **Height.**—Rival exceeded all other varieties by the following differences: Marquis, .7 inch; Renown, 1.9 inches; Apex, 2 inches; Thatcher, 2.5 inches, and Regent, 2.7 inches. **Straw Strength.**—In this zone the straw of all varieties was somewhat weaker than in many of the other zones. Renown and Regent tied but showed only slight superiority to Thatcher and Rival. Marquis was fifth and Apex showed the weakest straw, but the difference between any of the varieties was not of a marked nature. **Weight.**—Marquis outweighed Renown by only .1 lb. Thatcher, Apex, and Regent tied, each weighing .4 lb. less than Marquis. Rival was inferior to all varieties, the difference between this variety and Marquis being 1 lb. **Grades.**—A superabundance of green kernels was in evidence in the samples of all varieties. Some bleached kernels were also noticeable particularly in the Thatcher and Regent varieties, while a number of samples of Apex and Rival contained many kernels affected by black point. Marquis graded better than the other varieties, Rival being its closest competitor. Little difference appeared between the grades placed on Renown, Apex, Thatcher, and Regent, but these varieties ranked in the order named. **Stem Rust.**—Stem rust infection ranging from 10% to 65% was shown on the Marquis variety and in one test, Apex, Renown, Regent, and Rival were also reported to be slightly infected. **Smut.**—No covered smut appeared in any of the varieties but in one test a number of loose smutted heads appeared in Marquis. **Shattering.**—Little difference was shown between the loss by shattering sustained by the different varieties. Apex appeared to have suffered the least loss.

General Results.—The excellent yield of Thatcher more than offset its inferiority to some of the other varieties in bushel weight and commercial grades. Marquis, while yielding fairly well and showing comparatively good bushel weight and grades, was nearly two days later than any of the other varieties and was inferior to nearly all varieties in straw strength. In many tests rust infection was in evidence on the stems of Marquis and its continued use in this zone, which has in the past suffered severely from rust attacks, is subject to distinct danger. The general performance of Rival appears relatively satisfactory. Although this variety shows no outstanding merit in any characteristic the average of the past two years shows that it has slightly outyielded all other rust-resistant varieties with the exception of Thatcher. Apex, although weak in straw, appears reasonably satisfactory in other characteristics. Apart from earliness, Regent showed no outstanding merit. Renown was low in yield but showed good bushel weight and fairly good grades. The advantage it enjoyed in weight and grades over most of the other varieties failed, however, to compensate for its inferiority in yield. The results of this test clearly show that Thatcher, notwithstanding its inferiority to some of the other varieties in weight and grades, has proved its suitability for use in this zone. This is confirmed by the results of tests conducted each year since 1937 when for three out of four years it has outyielded all varieties. In the 1940 test, apart from Marquis which in this zone is undesirable because of susceptibility to stem rust infection, Rival appears to rank second to Thatcher. It also appeared to be reasonably satisfactory in 1939. In neither of these years, however, has this variety shown outstanding merit and more conclusive data are necessary before any definite recommendation can be made. Of the other varieties, Apex appears to have made the best showing but Renown has been outyielded by all varieties. The results of tests conducted from 1937 to 1940 show that in two years, (1938 and 1939) Renown has exceeded Apex in yield but in 1937 and 1940 Apex outyielded Renown. In 1937 and 1938 Apex exceeded Renown in bushel weight and commercial grades, while in 1939 and 1940 Renown surpassed Apex in both weight and grades. Generally, taking the results of the four years' tests as a whole,

Thatcher, Apex, and Renown appear to be the most suitable varieties for use in this zone, and they are the ones officially recommended.

TABLE No. 17.—SUMMARIZED RESULTS FOR ZONE 3C.

	Marquis	Thatcher	Apex	Renown	Regent	Rival
Yield in bushels per acre.....	28.6	31.4	26.3	25.0	25.6	26.9
Days from seeding to ripening..	112.3	110.1	110.4	109.5	108.9	110.9
Height of plant in inches.....	34.0	32.2	32.7	32.8	32.0	34.7
Straw strength.....	8.3	8.6	8.1	8.7	8.7	8.5
Bushel weight in pounds.....	63.3	62.9	62.9	63.2	62.9	62.3
Commercial grades in percent—						
age.....						
1 Hard	36.0	27.0	27.0	27.0	27.0	36.0
1°	9.0	9.0	18.0	27.0	9.0	—
2°	27.0	28.0	10.0	19.0	9.0	19.0
3°	28.0	36.0	25.0	27.0	55.0	45.0

Necessary difference—1.7 bushels.

CEREAL VARIETY ZONE 3D

Only two tests are available for analysis purposes in this zone. The tests which reached maturity were conducted by Delbert Patterson of Tisdale, and Jack Cunningham York of Leacross, and the results of each test are shown on Pages 54 and 55. Owing to the inadequacy of the data, no attempt is made to present the results of these tests on a zonation basis, but in order that some information may be available, we give below an extract from the results of the 1939 test when the same varieties were used. "Generally Thatcher appears to have made the best showing. Rival, although somewhat low in commercial grades, yielded well in this test, and showed considerable merit in other characteristics, but its tendency to shatter easily is a handicap. Further tests are required in connection with this variety before any definite information is available. Considering the three-year period, 1937-1939, Thatcher's supremacy in yield is upheld, but Apex and Renown only averaged 5% and 7% less, respectively, and graded better. Marquis on the other hand averaged 22% less than Thatcher in yield, which aside from rust susceptibility, is a severe handicap. The three years' results indicate the suitability of Thatcher, Apex, and Renown for this zone." They are all officially recommended for 1941.

CEREAL VARIETY ZONE 3E

Yield.—Thatcher again led in yield, yielding significantly more than any of the other varieties. Marquis ranked second but failed to outyield Apex by a difference which equalled the necessary difference for the zone. It outyielded Rival, Regent, and Renown, however, by differences which are significant. Apex, although third in yield, failed to yield significantly more than either Regent or Rival, but outyielded Renown by a difference which is significant. A difference of only .3 bushel appeared between the yields of Regent and Rival. The difference, however, between Regent and Renown failed to equal the necessary difference, while Rival outyielded Renown by a difference which is barely significant. "**Earliness.**"—Regent and Renown almost tied, the difference between these two varieties being only .1 day. Apex and Thatcher were also almost equal and were later than Regent by only .4 day and .5 day respectively. **Height.**—Rival excelled, being taller than the other varieties by the following differences: Marquis, .3 inch; Renown, 1.3 inches; Apex, 1.4 inches; Thatcher, 1.8 inches, and Regent, 2.6 inches. **Straw Strength.**—Renown and Thatcher were almost equal and were superior to the other varieties which ranked in the following order: Regent, Rival, Marquis, and Apex. **Weight.**—Renown also excelled in bushel weight but was again followed closely by Apex, the difference between these two varieties being only .2 lb. Renown exceeded the other varieties by the following differences: Marquis, .7 lb.; Regent, .9 lb.; Thatcher, 1.2 lbs., and Rival, 1.4 lbs. **Grades.**—Some bleached, green, or shrunken kernels were in evidence in many samples. Apex and Renown, however, appeared to show somewhat fewer defects than the other varieties. Renown excelled in commercial grades but was closely followed by Apex. Marquis graded slightly better than Rival, and only a very slight difference appeared between the grades placed on the Rival and Thatcher varieties. The presence of shrunken or green

kernels in a number of samples of Regent placed this variety low in commercial grades. **Stem Rust.**—No stem rust infection was reported in this zone. **Smut.**—All varieties were free from covered smut but a number of loose smutted heads were shown in Marquis. A few loose smutted heads also appeared in the Apex and Regent varieties. **Shattering.**—The loss to Rival was approximately double the loss suffered by the other varieties.

General Results.—Thatcher yielded well and although it weighed somewhat less than some of the other varieties and the presence of bleached kernels caused a lowering of commercial grades in a number of samples, generally it appeared to be reasonably satisfactory. Marquis was second in yielding ability but the difference in yield between this variety and Apex was not of a significant nature, and in bushel weight and commercial grades Apex was superior to Marquis. Although Apex failed to yield significantly more than Regent and Rival, it outweighed and graded better than either of these varieties. Renown was low in yield and although it excelled in bushel weight and commercial grades, these factors failed to compensate for the difference in yield, at least when compared to some of the other varieties. The results of this test show that, although it was inferior to some of the other varieties in bushel weight and commercial grades, the general performance of Thatcher indicates its worthiness for use in this zone. This is confirmed by the results of tests conducted yearly since 1937, Thatcher having consistently outyielded the other varieties. Despite its inferiority in straw strength, however, the performance of Apex appears worthy of consideration. It was significantly outyielded by Thatcher and yielded slightly less than Marquis, but was superior to either of these varieties in both bushel weight and commercial grades. In previous tests Apex has yielded comparatively well and has exceeded Thatcher in bushel weight and commercial grades. Considering these and other results, the government officials recommended for 1941 the varieties Thatcher, Apex and Renown.

TABLE No. 18.—SUMMARIZED RESULTS FOR ZONE 3E.

	Marquis	Thatcher	Apex	Renown	Regent	Rival
Yield in bushels per acre.....	28.0	31.7	27.3	25.0	26.2	26.5
Days from seeding to ripening..	104.1	103.2	103.1	102.8	102.7	103.7
Height of plant in inches.....	34.7	33.2	33.6	33.7	32.4	35.0
Straw strength.....	8.5	9.2	8.2	9.3	8.8	8.7
Bushel weight in pounds.....	62.1	61.6	62.6	62.8	61.9	61.4
Commercial grades in percent-						
age.....						
1° Hard	40.0	40.0	53.0	53.0	33.0	40.0
1°	27.0	20.0	20.0	13.0	20.0	20.0
2°	20.0	20.0	13.0	27.0	27.0	20.0
3°	7.0	13.0	7.0	—	13.0	13.0
4°	—	—	7.0	—	7.0	—
5°	6.0	—	—	—	—	7.0
6°	—	7.0	—	7.0	—	—

Necessary difference—1.4 bushels.

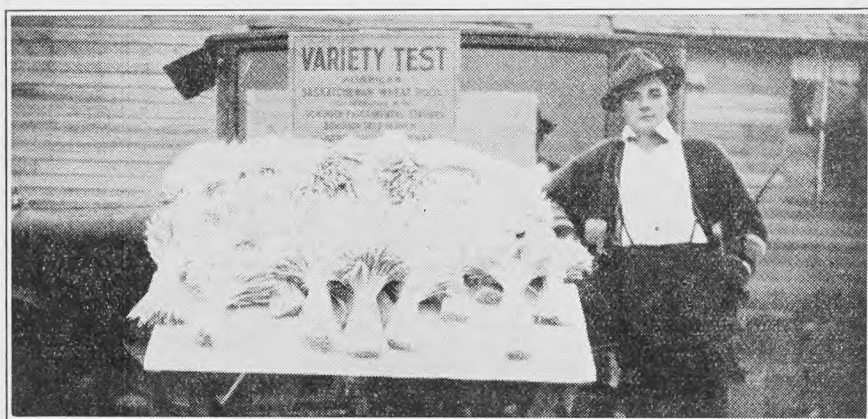
CEREAL VARIETY ZONE 4A

Only one test is available for yield results in this zone. This test was conducted by John Weber of McKague, and the data are presented in the individual results appearing on Page 54. No attempt is made to show results from the 1940 test on a zonation basis. An extract from the results of the 1939 test, however, when the same varieties were used, reads as follows: "In this area, which has been subject to severe rust attacks, the choice of a variety with rust-resistant qualities is important. The results of this test and the results of previous tests indicate that Thatcher is at least one of the best varieties for this zone. Of the other rust-resistant varieties used in the 1939 test, Apex and Renown show considerable merit. Apex excelled in commercial grades and showed comparatively good bushel weight. In the 1937 test, Apex significantly outyielded Renown. In 1938, however, Renown significantly outyielded both Thatcher and Apex and in the 1939 test its lower yield is to a great extent offset by its advantages to some of the other varieties in earliness, straw strength, bushel weight, and commercial grades. Marquis showed no outstanding advantages and its susceptibility to rust infection during the past season is significant." Of the varieties used in the test, Thatcher and Renown are officially recommended for use in 1941.

CEREAL VARIETY ZONE 4B

Yield.—Although Rival was the highest yielder, it was closely followed by Thatcher, the difference being only .4 bushel. Both of these varieties failed to outyield Marquis, Apex, and Regent by a difference which equalled the necessary difference for the zone. Renown, however, was significantly outyielded by all varieties with the exception of Regent. **"Earliness."**—Regent excelled, ripening earlier than the other varieties by the following differences: Renown, .6 day; Thatcher, 2.2 days; Rival, 2.6 days; Apex, 3.2 days; Marquis, 5.2 days. **Height.**—Rival exceeded all varieties by differences ranging from 2.4 inches to 5.4 inches. **Straw Strength.**—Thatcher showed the strongest straw being slightly superior to Regent, and somewhat superior to Renown. Apex showed slightly stronger straw than Marquis and was superior to Rival. **Weight.**—Renown excelled but outweighed Marquis by only .1 lb. Renown outweighed the other varieties, however, by the following differences: Apex, .4 lb.; Thatcher, .7 lb.; Regent, .8 lb.; Rival, 1.3 lbs. **Grades.**—Marquis and Renown both showed excellent commercial grades. Apex ranked second. Thatcher and Rival tied, both showing some bleached and green kernels. Regent was low, green kernels appearing in a number of samples. **Stem Rust.**—Some evidence of stem rust was shown only in one test, the amount of infection appearing on the Marquis variety being 10%. All other varieties were free from infection. **Smut.**—Light traces of covered smut were found in the Marquis and Apex varieties. Some loose smutted heads were also in evidence on all varieties, Marquis appearing to have somewhat more affected heads than the others. **Shattering.**—All varieties were free from any loss by shattering.

General Results.—Although outyielded by Rival by a small difference, Thatcher was slightly earlier than this variety, and was superior in straw strength and bushel weight and tied with Rival in commercial grades, and it would appear that of these two varieties Thatcher held a slight advantage. A difference of only .2 bushel appeared between the yield of Marquis and Apex. Apex, however, was two days earlier than Marquis (a feature which in this northern zone is of great importance) and although it showed slight inferiority in bushel weight and commercial grades, Apex appeared to be more preferable. Regent yielded fairly well, excelled in "earliness" and showed good straw strength. It was, however, somewhat low in bushel weight and decidedly low in commercial grades. Renown was distinctly lower than the other varieties in yield but excelled in bushel weight and tied with Marquis in exceeding the other varieties in commercial grades. Although showing an inferiority in weight and commercial grades to some of the other varieties, generally the performance of Thatcher indicates its worthiness for use in this zone. This is confirmed by previous tests in which Thatcher has consistently given a



Henry B. Swatzky of Herschel, drying the sheaves from his Wheat Test, before bagging for shipment.

creditable performance and it is officially recommended for 1941. While inferior in straw strength and being somewhat later than a number of other varieties which, in this northern zone, is a distinct handicap, Rival proved to be comparatively satisfactory. In 1939 it also showed reasonable satisfaction. It has no outstanding attributes, however, and further tests are necessary before any definite recommendation for its use can be made.

TABLE No. 19.—SUMMARIZED RESULTS FOR ZONE 4B.

	Marquis	Thatcher	Apex	Renown	Regent	Rival
Yield in bushels per acre.....	30.0	31.4	23.8	25.6	29.0	31.8
Days from seeding to ripening..	107.8	104.8	105.8	103.2	102.6	105.2
Height of plant in inches.....	33.2	30.2	32.6	31.8	32.4	35.6
Straw strength.....	8.8	9.5	8.9	9.2	9.4	8.4
Bushel weight in pounds.....	64.1	63.5	63.8	64.2	63.4	62.9
Commercial grades in percent-						
age.....1 Hard	100.0	60.0	80.0	100.0	20.0	60.0
1°	—	40.0	20.0	—	80.0	40.0

Necessary difference—3.9 bushels.

VARIETAL PERFORMANCE

Varieties Listed in Alphabetical Order

Apex.—Taking the project as a whole the average yield of Apex was 25.6 bushels per acre. It was outyielded by Thatcher by a difference of 3.3 bushels, but exceeded the other varieties in yield by the following differences: Marquis, .2 bus.; Regent, 1 bus.; Rival, 1.4 bus., and Renown, 2 bus. In the Cereal Variety Zones under review, Apex yielded significantly more than the varieties shown: 1A—Regent, Renown, Rival, and Marquis; 1B—Regent, Renown, and Rival; 2A—Regent, and Renown; 2B—Regent, Renown, and Rival; 2C—Renown; 3E—Renown; 4B—Renown. Owing to the limited nature of the information available in Zones 3B, 3D, and 4A, the tests in these zones are not included in this summary. In Zones 2D, 3A and 3C, Apex outyielded both Renown and Regent, but failed to exceed any of these varieties by differences which equalled the necessary difference for the zone. Averaging over the whole project 100.9 days to reach maturity, Apex ripened earlier than Rival or Marquis by .4 day and .9 day respectively, but was slightly later than the other varieties. In Zone 2D, however, it exceeded all varieties in "earliness." Although slight variations appeared in a few zones, generally Apex ranked third in plant height. It was exceeded in height by Marquis and Rival, but in most zones it was somewhat taller than Renown, Regent, or Thatcher. Over the whole project, Apex was inferior to the other varieties in straw strength. It showed only slight inferiority, however, to either Marquis or Regent, and the difference between Apex and the other varieties was not of a marked nature. Weighing 62.9 lbs. per measured bushel, Apex was outweighed by Renown, but the difference between these two varieties was only .4 lb. Some slight variations appeared in the comparative weights in the different zones but a general comparison of the zones under review shows that Apex exceeded the other varieties in bushel weight by the following differences: Marquis, .3 lb.; Thatcher and Regent, .7 lb., and Rival, .8 lb. The commercial grades placed on the Apex variety were as follows: 1 Hard, 41%; 1 Nor., 31.5%; 2 Nor., 12.8%; 3 Nor., 4.8%; 4 Nor., 2%; 4 Spec., 7.9%. The amount of stem rust infection appearing on the stems of Apex was only of a light nature. It was approximately half the amount of infection appearing on Thatcher; equal to Renown, slightly less than the infection shown on Regent, and more than 50% less than the infection appearing on the Rival variety. It was of course decidedly less infected than Marquis. No covered smut was reported but loose smutted heads were in evidence in a few tests. The number of affected heads was only approximately half the number appearing in the Marquis variety, but twice the number reported in Thatcher. Little difference appeared between the number of loose smutted heads appearing in the other varieties. The loss by shattering to the Apex variety was approximately half the loss sustained by Rival. It suffered slightly more loss than Renown, but somewhat less than the other varieties. The official committee on cereal varieties recommend Apex in all zones, with the exception of 4A and 4B.

Marquis.—Averaging 25.4 bushels per acre, Marquis ranked third in yield. It was outyielded by Thatcher by a difference of 3.5 bushels, but Apex exceeded it in yielding ability by only .2 bushel. Over the entire project Marquis yielded more than the other varieties by the following differences: Regent, .8 bus.; Rival, 1.2 bus.; and Renown, 1.8 bus. In the following zones Marquis outyielded the varieties mentioned by differences which equalled or exceeded the necessary difference for the zones: 1B—Regent, Renown, and Rival; 2A—Renown, and Regent; 2B—Regent, Renown, and Rival; 2C—Renown; 2D—Renown, and Rival; 3A—Apex, Regent, and Renown; 3C—Rival, Apex, Regent, and Renown; 3E—Rival, Regent, and Renown; 4B—Renown. In Zones 3B, 3D, and 4A, only a limited number of tests were brought to a successful conclusion and the data available are insufficient to make accurate comparisons of the different varieties. In Zone 1A where stem rust infection was most severe the yield of Marquis was distinctly lowered. In other zones, particularly 3A and 3C, although stem rust was reported, the infection was not of a particularly severe nature, and neither yields or grades were unduly affected. The presence of stem rust infection, however, over a relatively wide area is sufficient indication of danger in the continued use of the Marquis variety, at least insofar as the major part of Saskatchewan is concerned. Thus Marquis is now officially recommended only in Zones 1B and 2D where danger from stem rust is very slight. Requiring an average of 101.8 days to reach maturity, Marquis was later than the other varieties by the following differences: Rival, .5 day; Apex, .9 day; Thatcher, 1.3 days; Renown, 1.4 days, and Regent, 1.6 days. Its longest maturity period was shown in Zone 3D where it required 121 days from sowing to ripening, being five days later than Renown, the earliest ripening variety in this zone. Taking the project as a whole Marquis was exceeded in height by Rival by .5 inch, but it was taller than the other varieties by the following differences: Apex, .6 inch; Renown, .9 inch; Regent, 1.2 inches, and Thatcher, 1.3 inches. Some variation was shown in the comparative straw strength in the different zones. In Zone 3B Marquis was decidedly inferior to the other varieties, which may have been due to rust infection. Generally, over the whole test, it appeared to be slightly stronger strawed than Regent and Apex, but slightly inferior in this characteristic to the other varieties. Averaging 62.6 lbs. per measured bushel, Marquis outweighed Thatcher and Regent by .4 lb. and Rival by .5 lb. It was, however, exceeded in bushel weight by Apex and Renown by differences of .3 lb. and .7 lb. respectively. The commercial grades placed on the Marquis variety are shown as follows: 1 Hard, 43.4%; 1 Nor., 21.9%; 2 Nor., 26.5%; 3 Nor., 5.4%; 4 Nor., 2.1%; No. 5, .5%; No. 6, .2%. Stem rust infection was reported on the Marquis variety in all zones with the exception of 2D and 3E. The heaviest infection appeared in Zone 1A. In this zone the average percentage of infection was reported to be 39%. Over the whole project Marquis showed an average infection of 14%. No covered smut was reported. The number of loose smutted heads appearing in the Marquis variety was approximately twice the number appearing in Apex or Renown; and Marquis sustained approximately 50% less loss by shattering than Rival, slightly less than Regent, but the loss to Marquis was somewhat more than that suffered by Thatcher, Apex, or Renown.

Regent.—An average of all tests showed the yield of Regent to be 24.6 bushels per acre. It outyielded Rival and Renown by .4 bushel and 1 bus. respectively. It was, however, exceeded in yielding ability by Marquis, Apex, and Thatcher by differences of .8 bus.; 1 bus.; and 4.3 bus. respectively. In the following zones Regent yielded significantly more than the varieties mentioned: 1A—Renown and Marquis; 1B—Renown and Rival; 2C—Renown; 2D—Renown, Rival, and Apex. In Zones 3B, 3D, and 4A the limited amount of information available from this series of tests makes an accurate comparison of yields impossible. The average number of days required by the Regent variety from sowing to ripening was 100.2 days. It exceeded all varieties in "earliness" by differences which ranged from .2 day to 1.6 days. In Zone 2A it was slightly later than Thatcher or Renown, and in Zone 2D it tied with Renown in earliness. In all other zones, however, where an accurate comparison is possible, Regent ripened earlier than the other varieties. Averaging over the whole project 30.6 inches, Regent exceeded Thatcher in height in nearly all zones. The most outstanding exception was in Zone 3E where Thatcher was .8 inch taller than Regent. Taking the project as a whole Regent was exceeded in height by the other varieties by the following differences: Renown, .3 inch; Apex, .6 inch; Marquis, 1.2

inches, and Rival, 1.7 inches. In straw strength Regent appeared to most advantage in the northeast but a general comparison over the entire project showed that it was slightly superior to Apex; and slightly inferior to the other varieties. Little difference appeared between the weights of Regent and Thatcher in any zone and a general comparison of all tests showed that these varieties tied in weight per measured bushel. Regent outweighed Rival by a difference of only .1 lb., but was exceeded in weight by the other varieties by the following differences: Marquis, .4 lb.; Apex, .7 lb.; and Renown, 1.1 lbs. The commercial grades placed on the Regent variety are shown as follows: 1 Hard, 28.8%; 1 Nor., 30.4%; 2 Nor., 25.8%; 3 Nor., 13.4%; 4 Nor., 1.1%; 4 Spec., .5%. The percentage of stem rust infection which appeared on Regent was only of a light nature. It was, however, slightly more than the infection appearing on Apex or Renown, but approximately 30% less than the infection reported on the Thatcher and Rival varieties. No covered smut was recorded. The number of loose smutted heads in Regent was somewhat more than the number appearing in Thatcher and Rival, but slightly less than the number appearing in Apex and Renown. Regent, however, showed 45% less smutted heads than Marquis. Regent suffered decidedly less loss by shattering than Rival, but showed a slightly heavier loss than the other varieties. No official recommendation of Regent will be made until the very limited amount of seed of the new strain R.L. 975.6 has been increased. The old strain R.L. 975.1 was used in these tests.

Renown.—Over the whole project Renown showed an average yield of 23.6 bushels per acre, and was outyielded by all varieties by the following differences: Rival, .6 bus.; Regent, 1 bus.; Marquis, 1.8 bus.; Apex, 2 bus., and Thatcher, 5.3 bus. Only in three zones did Renown significantly outyield any of the other varieties. These were in Zone 1A where rust infection was most severe and Renown yielded significantly more than Marquis, and in Zone 1B where Renown exceeded Rival in yield by a difference which exceeded the necessary difference for the zone, and in Zone 2A where it significantly outyielded Regent. Reaching maturity in 100.4 days, Renown was approximately equal to Thatcher in "earliness." It was slightly later than Regent but ripened earlier than the other varieties by the following differences: Apex, .5 day; Rival, .9 day; and Marquis, 1.4 days. Averaging over the whole project 30.9 inches, Renown was slightly taller than Thatcher and Regent but was exceeded in height by Apex, Marquis, and Rival, by .3 inch, .9 inch, and 1.4 inches respectively. In straw strength Renown exhibited most superiority in the northern zones but a general comparison of all tests shows that in this characteristic Renown was slightly inferior to Thatcher, tied with Rival, and was slightly superior to the other varieties. With the exception of four zones, Renown excelled in bushel weight. The exceptions were in Zone 1A, where Apex tied with Renown, and in Zones 2C, 3A, and 3C, where Marquis exceeded Renown by slight differences. In nearly all zones the difference in bushel weight between Renown and Marquis or Apex was only of a slight nature, and an average of all tests shows that Renown exceeded Apex in bushel weight by only .4 lb., and Marquis by .7 lb. Renown, however, outweighed Thatcher and Regent by 1.1 lbs.; and Rival by 1.2 lbs. The percentage of commercial grades placed on the Renown variety are shown as follows: 1 Hard, 48.8%; 1 Nor., 26.4%; 2 Nor., 17.5%; 3 Nor., 5.6%; 4 Nor., 1%; No. 6, .5%; and 4 Spec., .2%. Traces of rust appeared on the stems of the Renown variety in the southern and east-central zones. Renown, however, appeared to be highly resistant, the percentage of infection being approximately equal to the infection appearing on Apex, and somewhat less than the infection shown on the other resistant varieties. It was of course decidedly less infected than Marquis. No covered smut was reported. The number of loose smutted heads appearing in the Renown variety was approximately twice the number appearing in Thatcher and Rival, but only slightly more than the affected heads reported in Apex and Regent. It showed, however, nearly half the number shown in the Marquis variety. The loss by shattering was approximately half the loss sustained by Rival, but approximately equalled the loss suffered by the other varieties. Renown is officially recommended in Zones 2A, 2B, 3A, 3B, 3C, 3D, 3E and 4A.

Rival.—An average of all tests shows that Rival yielded 24.2 bushels per acre. It exceeded Renown in yielding ability by a difference of .6 bus., but was outyielded by the other varieties by the following differences: Regent, .4 bus.; Marquis, 1.2 bus.; Apex, 1.4 bus., and Thatcher, 4.7 bus. In

the following zones Rival yielded significantly more than the varieties named: 1A—Marquis (in this zone stem rust infection undoubtedly lowered the yield of the Marquis variety); 2A—Regent; 2C—Renown; 3A—Apex, Regent, and Renown; 3C—Renown; 3E—Renown; 4B—Renown. Owing to the limited number of tests which were available for analysis purposes in Zones 3B, 3D, and 4A, the results of these zones are not taken into consideration in this summary. In Zone 2A Rival was slightly earlier than Apex. In Zone 2D it was .6 day later than Marquis, and in Zone 3A it tied with Marquis in its maturity period. Taking the project as a whole, however, Rival required an average of 101.3 days to reach maturity. It ripened .5 day earlier than Marquis but was later than the other varieties by the following differences: Apex, .4 day; Thatcher, .8 day; Renown, .9 day, and Regent, 1.1 days. In Zone 1A Marquis was slightly taller than Rival and in Zone 2A both Marquis and Apex exceeded Rival in height by slight differences. Over the entire project, however, Rival exceeded the other varieties in height by the following differences: Marquis, .5 inch; Apex, 1.1 inches; Renown, 1.4 inches; Regent, 1.7 inches, and Thatcher, 1.8 inches. Taking the tests as a whole, Rival showed relatively good straw strength. A general comparison shows it to be slightly inferior to Thatcher; equal to Renown; and somewhat superior to the other varieties. A study of the comparative straw strengths in the different zones shows, however, that while Rival was relatively strong strawed in the southern and central areas, it showed marked inferiority to some of the other varieties in the northern zones. This applies particularly to Zone 4B where it was inferior to all varieties. With the exception of four zones (1A, 2A, 2B, and 2C) where Rival exceeded some of the other varieties, it was low in bushel weight in all zones. Taking the project as a whole, Rival weighed 62.1 lbs. per measured bushel. This comparison shows that while the difference between Rival and Thatcher or Regent was only .1 lb., Rival was exceeded in weight by the other varieties by the following differences: Marquis, .5 lb.; Apex, .8 lb., and Renown, 1.2 lbs. The commercial grades placed on the Rival variety are shown in percentage as follows: 1 Hard, 34.6%; 1 Nor., 27.9%; 2 Nor., 24.2%; 3 Nor., 11.4%; No. 4, 1.2%; No. 5, .5%; 4 Spec., .2%. Only light rust infection appeared on the stems of Rival in the southern and central zones. The percentage of infection was practically equal to the infection appearing on Thatcher, and somewhat more than that shown on the Apex, Renown, and Regent varieties. It was, of course, decidedly less infected than Marquis. No covered smut was recorded. Rival showed only one-third the number of loose smutted heads reported in Marquis and with the exception of Thatcher, showed a smaller number of affected heads than any of the other varieties. The loss by shattering to Rival was nearly twice the loss sustained by any of the other varieties. Rival is a new variety not yet licensed for sale in Canada. It has many virtues but it also has weaknesses. On the whole this variety certainly does not appear to be better than the existing standard rust-resistant varieties used in Saskatchewan. Therefore, in the interests of avoiding the confusion of having many varieties, the use of Rival does not seem warranted.

Thatcher.—Averaging over the entire project 28.9 bushels per acre, Thatcher outyielded the other varieties by the following differences: Apex, 3.3 bus.; Marquis, 3.5 bus.; Regent, 4.3 bus.; Rival, 4.7 bus., and Renown, 5.3 bus. Thatcher yielded significantly more than any of the other varieties in Zones 1A, 1B, 2A, 2B, 2C, 3C, and 3E. In the following zones it also outyielded the varieties mentioned by differences which exceeded the necessary difference for the zone: 2D—Marquis, Apex, Renown, and Rival; 3A—Apex, Regent, and Renown; 4B—Renown. Owing to the limited number of tests which reached maturity in Zones 3B, 3D, and 4A, the results of these zones are not considered in this discussion. In Zones 2A and 2C Thatcher excelled in "earliness" but in other zones it ripened somewhat later than a number of the other varieties. Some variation occurred in the comparative maturity periods in different zones, but generally little difference appeared between Thatcher and Renown. Taking the project as a whole, Thatcher required 100.5 days to reach maturity. It was later than Renown and Regent by .1 day and .3 day respectively, but exceeded the other varieties in earliness by the following differences: Apex, .4 day; Rival, .8 day, and Marquis, 1.3 days. Over the entire project Thatcher showed an average height of 30.5 inches. It was shorter than the other varieties by the following differences: Regent, .1 inch; Renown, .4 inch; Apex, .7 inch; Marquis, 1.3 inches, and Rival, 1.8 inches. Thatcher showed good straw strength in nearly all zones

and taking the project as a whole, it excelled in this characteristic. Over the entire test Thatcher weighed 62.2 lbs. per measured bushel. It exceeded Rival by a difference of only .1 lb., tied with Regent and was outweighed by the other varieties by the following differences: Marquis, .4 lb.; Apex, .7 lb., and Renown, 1.1 lbs. The commercial grades placed on the Thatcher variety are shown as follows: 1 Hard, 29.8%; 1 Nor., 38.7%; 2 Nor., 15.6%; 3 Nor., 12.4%; 4 Nor., 2.5%; No. 6, .5%; 4 Spec., .5%. The percentage of rust infection appearing on the stems of Thatcher was approximately equal to the infection shown on Rival but somewhat more than the infection reported on the other resistant varieties. No covered smut was reported. The number of loose smutted heads in Thatcher was only approximately 25% the number appearing in Marquis, and decidedly less than the number of affected heads in the other varieties. Thatcher suffered slightly more loss by shattering than Apex or Renown, but slightly less than Marquis or Regent. Thatcher, however, sustained only approximately 50% of the loss shown to the Rival variety. The Saskatchewan Cereal Variety Committee recommend Thatcher for use in all zones in 1941.

INDIVIDUAL RESULTS

Table No. 20 shows the individual results obtained by each co-operator arranged by Wheat Pool Districts. A careful perusal of this table will allow a co-operator to study his results with those of his fellow co-operators. Thus, Henry J. C. Brown of Readlyn, who conducted a Wheat Test, and whose test designation is "A," Sub-district 8, District 2, finds that Thatcher yielded at the rate of 7 bushels more than Renown. The necessary difference in yield in this test is 3.6 bushels. Thus, as 7 bushels is more than 3.6 bushels Thatcher yielded, under the conditions of the test and irrespective of soil variability, significantly more than Renown. After examining in this way the results of his own test, Henry Brown turns to the test conducted in his district by Geo. Harvey Mann of Bengough, and finds that here also Thatcher outyielded Renown significantly. An examination of the results throughout the table will reveal the fact that the varieties do not retain similar relationships in the different areas of the province, in fact, sometimes not even in tests which are relatively close together. Differences of this nature may be due to several causes, the most important being differences in soil, in local weather conditions, or in the date of sowing. A few days' difference in seeding dates in the same field may give an appreciable difference in results. However, each individual test gives an accurate indication of the comparative performance of the varieties under the conditions existing on the farm where the test was made for the year 1940. An explanation is needed respecting the data on commercial grades. The commercial grade of a variety is determined by many factors. The most important factor, of course, is the weight per measured bushel. Sometimes, however, features such as green, shrunken or bleached kernels will lower the grade regardless of bushel weight. These features must be taken into consideration when studying the individual summarized results. In this report it is impossible to show the exact extent to which the defects have reduced the grade of any variety but included in the individual summarized results, under the heading of "Grading remarks," enough information is given to make the defects easily recognizable. The following abbreviations have been used to indicate the various defects: V. g.—Very green; G.—Green; S. g.—Some green; S. sh.—Some shrunken; Sh.—Shrunken; B. sh.—Badly shrunken; S. i.—Some immature; I.—Immature; Bl.—Bleached; S. bl.—Some bleached; B. bl.—Badly bleached; S. st.—Some starchy; St.—Starchy; V. st.—Very starchy; S. sp.—Some sprouted; Sp.—Sprouted; B. sp.—Badly sprouted; P.—Pink; S. p.—Some pink; L. w.—Light weight; B. p.—Black point; S. b. p.—Some black point; H.—Heated; Mxd. h.—Mixed heated; B. h.—Badly heated; F.—Frosted; L. f.—Lightly frosted; S. f.—Some frosted; W.—Weathered; Sl. w.—Slightly weathered; T.—Thin; Pl.—Peeled; M.—Mildewed; Hl.—Hulled; S. hl.—Some hulled; Dgd.—Damaged.

TABLE No. 20
Individual Summarized Results of All Tests—WHEAT
WHEAT POOL DISTRICT 1

Cereal variety zone	Dist.	Sub-dist.	Test designation	Varieties	Yield bus. per acre	Plant height in inches	Days seed-ing to ripe	Straw strength	Pounds per measured bushel	Commer-cial grades	Grading remarks	Protein content in per-centage
HUGH RONALD WILMOT, CARNDUFF												
2A	1	1	B	Marquis.....	17	21	91	8	60	2	Bl.	14.8
..	Thatcher.....	16	21	91	8	58	3	Bl.	16.3
..	Apex.....	14	21	91	8	59	3	Bl.	15.6
..	Renown.....	13	21	91	8	59.5	3	Bl.	15.7
..	Regent.....	9	21	91	8	57	3	Bl.	16.3
..	Rival.....	9	23	91	10	59	3	Bl.	15.5

Necessary difference 2.7 bushels.

AXEL CARLETON REKKEN, FERTILE												
3A	1	2	B	Marquis.....	..	28	92	10	..	..	....	....
..	..	..	..	Thatcher.....	..	29	89	10	..	..	....	....
..	..	..	..	Apex.....	..	31	91	9	..	..	....	....
..	..	..	..	Renown.....	..	28	86	8	..	..	....	....
..	..	..	..	Regent.....	..	29	86	7	..	..	....	....
..	..	..	..	Rival.....	..	33	92	9	..	..	....	....

No yields received—(Destroyed by pests).

JOHN ANDREW HUMBLE, AUBURNTON												
3A	1	3	B	Marquis.....	22	27	106	10	62	1	S g.	13.2
..	..	..	..	Thatcher.....	19	25	106	10	58	2	Bl. Sh	15.8
..	..	..	..	Apex.....	16	23	106	10	61	1	Sh.	14.3
..	..	..	..	Renown.....	18	26	106	9.7	61.5	1	Sh	14.6
..	..	..	..	Regent.....	18	26	106	9.7	60.5	1	Sh.	14.2
..	..	..	..	Rival.....	17	26	106	10	62.5	1 Hd.	....	14.3

No significant yield difference between varieties.

EUGENE MELVIN PERCY, HIRSCH												
2A	1	4	B	Marquis.....	19	24	87	10	63.5	1 Hd.	....	13.2
..	..	..	..	Thatcher.....	21	24	87	9	62	1	S. bl.	13.6
..	..	..	..	Apex.....	19	24	87	8.7	63	1 Hd.	....	14.2
..	..	..	..	Renown.....	15	24	87	8.7	61.5	1	S sh.	14.5
..	..	..	..	Regent.....	16	24	87	8	61	1	S sh.	14.5
..	..	..	..	Rival.....	19	24	87	8.7	63	1 Hd.	....	13.7

Necessary difference 2.9 bushels.

IVAN EMMETT ANDERSON, HALBRITE												
2A	1	6	B	Marquis.....	..	18	94	10	..	..	....	....
..	..	..	..	Thatcher.....	..	18	94	10	..	..	....	....
..	..	..	..	Apex.....	..	18	94	10	..	..	....	....
..	..	..	..	Renown.....	..	18	94	10	..	..	....	....
..	..	..	..	Regent.....	..	18	94	10	..	..	....	....
..	..	..	..	Rival.....	..	18	94	10	..	..	....	....

Yields rejected—Samples badly damaged by grasshoppers and gophers.

NEIL VICTOR FENWICK, GRIFFIN												
2A	1	8	B	Marquis.....	30	..	..	10	63	3	V. g.	14.7
..	..	..	..	Thatcher.....	35	..	..	10	62	3	V. g.	14.5
..	..	..	..	Apex.....	36	..	..	10	63	2	S g.	14.7
..	..	..	..	Renown.....	28	..	..	10	63.5	3	V. g.	15.8
..	..	..	..	Regent.....	30	..	..	10	62	2	Sh. g.	16.2
..	..	..	..	Rival.....	42	..	..	10	63	2	G.	14.5

Necessary difference—Samples bulked.

ROBERT GORDON ASKIN, ARCOLA												
3A	1	9	B	Marquis.....	22	31	98	9.7	63	2	G. I.	11.5
..	..	..	..	Thatcher.....	14	29	98	9.7	63	1	S g.	13.4
..	..	..	..	Apex.....	19	31	98	9.3	63	1	S g.	12.6
..	..	..	..	Renown.....	14	30	97	9.7	64	1 Hd.	....	13.7
..	..	..	..	Regent.....	10	28	97	10	63	1	S g.	13.9
..	..	..	..	Rival.....	18	31	98	9	63	1	S g.	13.4

No significant yield difference between varieties owing to unusual yield fluctuations within the test.

Tests Discarded on Account of Severe Damage by Drought, Pests, Hail, or Other Causes

1 7 B Herman Ralph Johnson, Hoffer 1 10 B Victor Eugene Hewitt, Wordsworth

WHEAT POOL DISTRICT 2

CARL ALBERT POHLE, OVERLAND												
1A	2	1	A	Marquis.....	8	19	..	10	62	1	S g.	15.7
..	..	..	..	Thatcher.....	16	19	..	10	59	3	B bl. G.	15.8
..	..	..	..	Apex.....	12	20	..	10	61	2	G. I.	16.0
..	..	..	..	Renown.....	11	18	..	10	61	2	G. I.	16.6
..	..	..	..	Regent.....	12	19	..	10	59	3	S bl. G. Sh.	16.6
..	..	..	..	Rival.....	8	19	..	10	60	3	G. S bl. S b p.	16.4

No significant yield difference between varieties owing to unusual yield fluctuations within the test.

Wheat Pool District 2—Continued

Cereal variety zone	Dist.	Sub- dist.	Test design- ation	Varieties	Yield bus. per acre	Plant height in inches	Days seed- ing to ripe	Straw strength	Pounds per measured bushel	Commer- cial grades	Grading remarks	Protein content in per- centage
FLOYD ORVILLE BARRETT, RADVILLE												
1A	2	1	B	Marquis.....	23	29	89	9.7	63	1	S g. B p.	15.3
..	Thatcher.....	21	27	88	9.7	61	1	Bl G.	15.6
..	Apex.....	21	27	89	9.7	62.5	1	S g.	15.6
..	Renown.....	20	26	88	9.7	62	1	S g.	15.9
..	Regent.....	25	31	87	9.7	62	1	S g.	15.9
..	Rival.....	20	25	88	9.0	61.5	1	S g.	16.1
No significant yield difference between varieties.												
DONALD JAMES STEPHENSON, HARDY												
1A	2	2	A	Marquis.....	34	46	110	9.7	59.5	2	Sh.	12.0
..	Thatcher.....	54	46	109	9.3	63.5	1 Hd.	....	13.7
..	Apex.....	44	44	111	6.7	63	1	B p.	14.9
..	Renown.....	46	45	110	10	64	1 Hd.	....	14.5
..	Regent.....	41	45	108	8.3	63.5	1 Hd.	....	14.7
..	Rival.....	29	45	108	7	62.5	1	B p.	15.0
Necessary difference 8.2 bushels.												
ROBERT JAMES E. RUTHVEN, LISIEUX												
1A	2	4	A	Marquis.....	21	33	98	9.7	59	2	B sh.	11.3
..	Thatcher.....	37	31	98	9.7	64	1 Hd.	....	14.6
..	Apex.....	30	31	98	10	64.5	1 Hd.	....	14.8
..	Renown.....	30	34	98	10	64.5	1 Hd.	....	15.4
..	Regent.....	30	31	98	9.3	64	1 Hd.	....	15.4
..	Rival.....	30	32	98	9.3	64	1 Hd.	....	14.8
Necessary difference 3.5 bushels.												
LEONARD BOURDAGE, WILLOWBUNCH												
1A	2	4	B	Marquis.....	....	35	....	10	....	..	....	....
..	Thatcher.....	....	33	....	10	....	..	....	....
..	Apex.....	....	33	....	10	....	..	....	....
..	Renown.....	....	34	....	10	....	..	....	....
..	Regent.....	....	33	....	10	....	..	....	....
..	Rival.....	....	35	....	10	....	..	....	....
No samples received.												
KENNETH HUBERT BARKER, KILLDEER												
1A	2	5	A	Marquis.....	25	34	97	9	64	1 Hd.	....	14.3
..	Thatcher.....	24	35	97	9.3	63	1 Hd.	....	15.6
..	Apex.....	23	35	97	9	64	1 Hd.	....	15.3
..	Renown.....	21	35	97	9	64	1 Hd.	....	15.9
..	Regent.....	20	35	97	9	64	1 Hd.	....	16.7
..	Rival.....	29	36	100	9.7	63.5	1 Hd.	....	14.8
No significant yield difference between varieties.												
ARTHUR WALTER DAVEY, LONESOME BUTTE												
1A	2	5	B	Marquis.....	13	13	94	8	63	1 Hd.	....	....
..	Thatcher.....	11	13	94	8	62	1 Hd.	....	....
..	Apex.....	13	13	94	8	63	1	S b p.	....
..	Renown.....	9	13	94	8	63	1	....	....
..	Regent.....	11	13	94	8	62	1	Bl. Sh.	....
..	Rival.....	12	13	94	8	62.5	1	S b p.	....
No significant yield difference between varieties.												
HARVEY WILLIAM GROVE, LAFLECHE												
1A	2	6	A	Marquis.....	17	24	....	7.3	64	1 Hd.	....	14.2
..	Thatcher.....	25	24	....	7.7	61.5	1	Sh.	14.3
..	Apex.....	21	25	....	7.7	63	1 Hd.	....	15.6
..	Renown.....	17	24	....	7.3	62.5	1 Hd.	....	15.6
..	Regent.....	19	25	....	7.7	60.5	1	Sh.	15.2
..	Rival.....	22	26	....	8.7	63	1 Hd.	....	14.0
Necessary difference 1.9 bushels.												
WALTER RYZAK, FIR MOUNTAIN												
1A	2	6	B	Marquis.....	27	35	....	10	64.5	1 Hd.	....	13.5
..	Thatcher.....	23	31	....	10	63.5	1 Hd.	....	14.1
..	Apex.....	22	31	....	10	64	1 Hd.	....	13.1
..	Renown.....	25	32	....	10	64.5	1 Hd.	....	14.0
..	Regent.....	19	30	....	10	63	1 Hd.	....	13.6
..	Rival.....	19	29	....	10	63	1 Hd.	....	13.0
No significant yield difference between varieties.												
ARNOLD ERNEST SILZER, LAKENHEATH												
1A	2	7	A	Marquis.....	10	18	95	5	61.5	1	Sh.	13.4
..	Thatcher.....	20	20	97	5	62	1 Hd.	....	14.7
..	Apex.....	18	19	98	5	64	1 Hd.	....	14.6
..	Renown.....	14	18	97	5	64	1 Hd.	....	14.8
..	Regent.....	17	19	96	5	63	1 Hd.	....	15.7
..	Rival.....	14	19	95	5	63	1 Hd.	....	14.5
Necessary difference 3.5 bushels.												

Wheat Pool District 2—Continued

Cereal variety zone	Dist.	Sub-dist.	Test designation	Varieties	Yield bus. per acre	Plant height in inches	Days seed-ing to ripe	Straw strength	Pounds per measured bushel	Commer-cial grades	Grading remarks	Protein content in per-centage
ARTHUR LAWRENCE PEDERSON, CONGRESS												
1A	2	7	B	Marquis.....	23	37	92	10	63	1 Hd.	....	13.0
..	Thatcher.....	40	37	89	10	63	1 Hd.	....	14.0
..	Apex.....	37	35	89	10	64.5	1 Hd.	....	14.1
..	Renown.....	34	36	89	10	65	1 Hd.	....	14.9
..	Regent.....	36	35	89	10	64	1 Hd.	....	15.4
..	Rival.....	31	37	89	10	64	1 Hd.	....	14.4
Necessary difference 3 4 bushels.												

HENRY J. C. BROWN, READLYN

1A	2	8	A	Marquis.....	26	40	97	8	61	1	Sh.	11.5
..	..	..	..	Thatcher.....	42	36	97	9	64	1 Hd.	....	13.7
..	..	..	..	Apex.....	39	39	97	8	64	1	S b p.	13.7
..	..	..	..	Renown.....	35	38	97	7	64	1 Hd.	....	14.4
..	..	..	..	Regent.....	34	37	97	7	64	1 Hd.	....	15.1
..	..	..	..	Rival.....	32	38	97	9	63	1 Hd.	....	13.6
Necessary difference 3.6 bushels.												

GEORGE HARVEY MANN, BENGOUCH

1A	2	9	A	Marquis.....	18	35	96	8.7	51	6	B sh.	13.1
..	..	..	..	Thatcher.....	43	34	98	9.3	63.5	1	S bl.	15.7
..	..	..	..	Apex.....	40	35	98	8.3	63.5	1	S bl.	16.0
..	..	..	..	Renown.....	36	34	100	10	64	1 Hd.	....	16.6
..	..	..	..	Regent.....	38	37	98	8	63.5	1	S g.	16.7
..	..	..	..	Rival.....	35	38	100	8.7	62.5	1	S b p.	15.7
Necessary difference 4.9 bushels.												

RICHARD JACKSON HARTLEY, OGEMA

1A	2	9	B	Marquis.....	26	30	95	9	62	1	S g.	16.0
..	..	..	..	Thatcher.....	34	31	89	8.7	62	1	S g.	16.2
..	..	..	..	Apex.....	29	31	93	7.7	62	1 Hd.	....	16.2
..	..	..	..	Renown.....	32	33	89	7	62.5	1	S g.	16.2
..	..	..	..	Regent.....	30	32	87	6.7	61	2	Sh. G.	16.2
..	..	..	..	Rival.....	33	31	95	8.7	61.5	1	S g.	15.7
No significant yield difference between varieties.												

Tests Discarded on Account of Severe Damage by Drought, Pests, Hail, or Other Causes.

2	1	C	Vernon Earl Janke, Beaubier	2	3	A	George H. Davies, Coronach
2	2	B	John Ehrmantraut, Minton	2	10	A	Norman Leslie McLeod, Trossachs

WHEAT POOL DISTRICT 3

BEN GORDON THOMSON, McCORD

1A	3	1	A	Marquis.....	24	29	103	10	64	1 Hd.	....	12.8
..	..	..	..	Thatcher.....	22	28	103	10	63.5	1 Hd.	....	13.3
..	..	..	..	Apex.....	22	28	103	9.7	64	1 Hd.	....	13.5
..	..	..	..	Renown.....	20	29	103	9.7	64	1 Hd.	....	13.3
..	..	..	..	Regent.....	16	24	103	9.7	63	1 Hd.	....	14.7
..	..	..	..	Rival.....	21	28	107	10	63	1 Hd.	....	13.5
No significant yield difference between varieties.												

PHILIPPE LOUIS LAPRISE, VAL MARIE

1A	3	2	A	Marquis.....	16	31	105	9.7	60	1	Sh.	13.3
..	..	..	..	Thatcher.....	25	30	104	9.7	64	1 Hd.	....	15.5
..	..	..	..	Apex.....	30	30	105	10	64	1 Hd.	....	15.5
..	..	..	..	Renown.....	14	28	104	8	64	1 Hd.	....	15.6
..	..	..	..	Regent.....	22	29	104	9.7	64	1 Hd.	....	15.7
..	..	..	..	Rival.....	21	31	105	10	63.5	1 Hd.	....	15.1
No significant yield difference between varieties.												

ELDON FRANCIS KNOX, WALLARD

1A	3	2	B	Marquis.....	36	35	97	8.3	64	1 Hd.	....	14.4
..	..	..	..	Thatcher.....	43	34	97	9	62.5	1 Hd.	....	15.2
..	..	..	..	Apex.....	36	34	97	9	64	1 Hd.	....	15.2
..	..	..	..	Renown.....	34	36	97	9	64	1 Hd.	....	15.2
..	..	..	..	Regent.....	36	34	97	9.3	62.5	1	S g.	15.8
..	..	..	..	Rival.....	38	35	97	10	63	1 Hd.	....	15.0
Necessary difference 2.9 bushels.												

MISS MYRTLE JOAN PROCTOR, CANUCK

1A	3	3	A	Marquis.....	32	35	107	10	60	1	Sh.	13.3
..	..	..	..	Thatcher.....	59	33	107	10	64	1 Hd.	....	15.3
..	..	..	..	Apex.....	54	36	107	10	63.5	1 Hd.	....	15.5
..	..	..	..	Renown.....	47	34	107	10	64	1 Hd.	....	16.3
..	..	..	..	Regent.....	49	33	107	10	63	1	S g.	16.3
..	..	..	..	Rival.....	39	37	107	10	63	1 Hd.	....	15.2
Necessary difference 5.7 bushels.												

Wheat Pool District 3—Continued

Cereal variety zone	Dist.	Sub-dist.	Test designation	Varieties	Yield bus. per acre	Plant height in inches	Days seed-ing to ripe	Straw strength	Pounds per measured bushel	Commer-cial grades	Grading remarks	Protein content in per-centage
NEIL R. BUCHANAN, CLAYDON												
1A	3	4	B	Marquis.....	32	36	100	9	63.5	1 Hd.	....	11.3
"	"	"	"	Thatcher.....	41	34	97	9.3	64.5	1 Hd.	....	13.4
"	"	"	"	Apex.....	39	34	96	8.7	65	1 Hd.	....	13.0
"	"	"	"	Renown.....	32	33	96	10	65	1 Hd.	....	14.1
"	"	"	"	Regent.....	33	31	96	8.7	64	1 Hd.	....	14.7
"	"	"	"	Rival.....	37	35	100	8.7	64.5	1 Hd.	....	13.0

No significant yield difference between varieties.

ROBERT H. BIRCHAM, KEALEY SPRINGS												
2C	3	6	A	Marquis.....	17	25	106	9	64	1 Hd.	....	13.2
"	"	"	"	Thatcher.....	16	19	106	8.7	63	1 Hd.	....	14.2
"	"	"	"	Apex.....	16	22	106	8.7	64	1 Hd.	....	13.0
"	"	"	"	Renown.....	13	20	106	9	64.5	1 Hd.	....	15.4
"	"	"	"	Regent.....	15	21	106	9	63.5	1 Hd.	....	15.5
"	"	"	"	Rival.....	15	21	106	8.3	63	1 Hd.	....	13.7

No significant yield difference between varieties.

FRANK EARNEST REBBECK, SOUTHFORK												
1A	3	7	A	Marquis.....	32	37	101	....	64	1 Hd.	....	11.9
"	"	"	"	Thatcher.....	35	34	96	....	63.5	1 Hd.	....	12.1
"	"	"	"	Apex.....	32	34	96	....	63	1 Hd.	....	11.6
"	"	"	"	Renown.....	31	35	98	....	64.5	1 Hd.	....	12.4
"	"	"	"	Regent.....	28	35	97	....	63	1 Hd.	....	12.7
"	"	"	"	Rival.....	32	35	101	....	63	1 Hd.	....	12.3

Necessary difference 2.6 bushels.

DONALD A. MEINERT, INSTOW												
2C	3	8	A	Marquis.....	43	42	....	8.7	65	1 Hd.	....	14.9
"	"	"	"	Thatcher.....	48	44	....	8.2	64	1 Hd.	....	15.5
"	"	"	"	Apex.....	40	43	....	7.8	64	1 Hd.	....	15.3
"	"	"	"	Renown.....	39	44	....	9	65	1 Hd.	....	15.2
"	"	"	"	Regent.....	43	42	....	8.8	64	1 Hd.	....	15.9
"	"	"	"	Rival.....	44	43	....	7.8	63.5	1 Hd.	....	15.1

Necessary difference 3.3 bushels.

CLARENCE GUST NELSON, INSTOW												
2C	3	8	B	Marquis.....	22	34	96	10	65	1 Hd.	....	13.8
"	"	"	"	Thatcher.....	20	30	90	8	63	1 Hd.	....	15.3
"	"	"	"	Apex.....	19	28	96	10	64.5	1 Hd.	....	14.3
"	"	"	"	Renown.....	18	33	94	9	65	1 Hd.	....	15.1
"	"	"	"	Regent.....	20	30	96	10	63.5	1 Hd.	....	14.9
"	"	"	"	Rival.....	21	29	94	9	65.5	1 Hd.	....	15.2

No significant yield difference between varieties.

RICHARD CHARLES ROSS, KINCAID												
1A	3	10	A	Marquis.....	17	27	104	8.3	62.5	1 Hd.	....	12.3
"	"	"	"	Thatcher.....	22	25	104	8	63	1 Hd.	....	12.8
"	"	"	"	Apex.....	18	26	102	8.7	63.5	1 Hd.	....	13.2
"	"	"	"	Renown.....	16	25	103	9	63	1 Hd.	....	13.9
"	"	"	"	Regent.....	17	25	102	9.3	61.5	1	L w.	13.8
"	"	"	"	Rival.....	17	26	101	8.7	63	1 Hd.	....	13.6

No significant yield difference between varieties.

ELMER L. J. DOUVILLE, PONTEIX												
1A	3	10	B	Marquis.....	....	28	....	7.3	64	1 Hd.	....	14.0
"	"	"	"	Thatcher.....	....	29	....	6.7	63	1 Hd.	....	14.9
"	"	"	"	Apex.....	....	28	....	8	63.5	1 Hd.	....	15.3
"	"	"	"	Renown.....	....	28	....	8.3	63.5	1 Hd.	....	15.1
"	"	"	"	Regent.....	....	27	....	7.3	63	1 Hd.	....	15.6
"	"	"	"	Rival.....	....	27	....	7.3	63.5	1 Hd.	....	14.4

Yields discarded. Considerable damage by shattering.

JOHN CHEDZEY MAYO, HAZENMORE												
1A	3	10	C	Marquis.....	26	36	95	7.3	63	1 Hd.	....	12.6
"	"	"	"	Thatcher.....	24	32	97	6.7	61.5	1	Bl.	15.1
"	"	"	"	Apex.....	23	33	96	7	64	1 Hd.	....	12.2
"	"	"	"	Renown.....	16	35	97	7.2	63	1	S g.	13.9
"	"	"	"	Regent.....	25	34	95	7.3	62.5	1	S g.	13.4
"	"	"	"	Rival.....	27	39	95	7.3	62.5	1 Hd.	....	14.0

No significant yield difference between varieties owing to unusual yield fluctuations within the test.

Tests Discarded on Account of Severe Damage by Drought, Pests, Hail, or Other Causes.

3	3	B	Miss Elizabeth Anne Bertram, Climax.	3	5	C	Robert Roshau, Senate.
3	4	A	Robert Harry Riddell, Loomis.	3	7	B	Orval Chatterson, Eastbrook.
3	5	A	Paul Edward Wenaas, Robsart.	3	9	A	Ivan Leo Boutin, Cadillac.
3	5	B	Alf Ingvald Dahl, Robsart.	3	9	B	Hector Ruest, Frenchville.

WHEAT POOL DISTRICT 4

Cereal variety zone	Dist.	Sub- dist.	Test desig- nation	Varieties	Yield bus. per acre	Plant height in inches	Days seed- ing to ripe	Straw strength	Pounds per measured bushel	Commer- cial grades	Grading remarks	Protein content in per- centage
DOUGLAS JOHN BUTLER, CARMICHAEL												
1B	4	1	A	Marquis.....	31	32	....	9.7	65	1 Hd.	....	14.1
..	Thatcher.....	32	29	....	10	64	1	S g.	15.9
..	Apex.....	29	31	....	8.3	64	1 Hd.	....	15.7
..	Renown.....	24	29	....	8.3	64	1	S g.	16.2
..	Regent.....	27	29	....	8	64	1	S g.	16.1
..	Rival.....	27	31	....	9	64	1	S g.	15.3

No significant yield difference between varieties.

RICHARD EDWARD HECKER, PIAPOT												
1B	4	1	C	Marquis.....	25	30	91	10	64	1 Hd.	....	14.4
..	..	..	..	Thatcher.....	23	26	90	9	63.5	1 Hd.	....	14.9
..	..	..	..	Apex.....	21	28	90	9	64	1 Hd.	....	15.1
..	..	..	..	Renown.....	20	28	89	9.3	64	1 Hd.	....	14.7
..	..	..	..	Regent.....	24	30	88	7.3	62.5	1 Hd.	....	14.2
..	..	..	..	Rival.....	23	30	89	10	63.5	1 Hd.	....	14.7

No significant yield difference between varieties.

EDWARD WHITE, MAPLE CREEK												
1B	4	2	A	Marquis.....	32	....	94	10	64.5	1 Hd.	....	11.1
..	..	..	..	Thatcher.....	36	....	94	10	65	1 Hd.	....	12.2
..	..	..	..	Apex.....	32	....	94	10	65	1 Hd.	....	11.9
..	..	..	..	Renown.....	31	....	94	10	65	1 Hd.	....	12.9
..	..	..	..	Regent.....	29	....	94	10	64	1 Hd.	....	11.4
..	..	..	..	Rival.....	27	....	94	10	64	1 Hd.	....	12.2

No significant yield difference between varieties owing to unusual yield fluctuations within the test.

LAWRENCE ARTHUR SCHATKOSKI, SWIFT CURRENT												
1B	4	3	A	Marquis.....	14	26	100	7.3	63.5	1 Hd.	....	15.2
..	..	..	..	Thatcher.....	18	25	99	7.3	63	1 Hd.	....	15.6
..	..	..	..	Apex.....	16	26	100	6.3	64	1 Hd.	....	15.7
..	..	..	..	Renown.....	12	26	99	7.3	64	1 Hd.	....	15.9
..	..	..	..	Regent.....	14	27	99	7	61.5	1	Sh.	16.2
..	..	..	..	Rival.....	15	26	99	7	63	1 Hd.	....	15.0

No significant yield difference between varieties.

FLOY ROLAND TUTTLE, BEVERLEY												
2C	4	3	B	Marquis.....	15	29	92	8.7	64	1 Hd.	....	15.2
..	..	..	..	Thatcher.....	19	26	93	9	62	1 Hd.	....	16.1
..	..	..	..	Apex.....	14	27	92	9	64	1 Hd.	....	15.8
..	..	..	..	Renown.....	14	25	92	9	64	1 Hd.	....	16.1
..	..	..	..	Regent.....	18	28	92	8.5	62	1	S g.	16.3
..	..	..	..	Rival.....	16	29	93	8.5	62.5	1 Hd.	....	15.6

No significant yield difference between varieties.

WILLIAM MITCHELL RUDOLPH, GULL LAKE												
2C	4	4	A	Marquis.....	41	33	107	10	64.5	3	V g.	13.9
..	..	..	..	Thatcher.....	42	33	102	10	63.5	4	V g.	14.6
..	..	..	..	Apex.....	40	34	106	9.3	64.5	1	S b p.	14.5
..	..	..	..	Renown.....	38	33	103	10	64.5	3	V g.	14.9
..	..	..	..	Regent.....	37	32	102	10	64	3	V g.	15.2
..	..	..	..	Rival.....	38	33	108	10	63.5	1	S g.	14.3

No significant yield difference between varieties

LEVI EDWIN HAYES, ILLERBRUN												
2C	4	4	B	Marquis.....	18	21	85	10	63	1 Hd.	....	14.9
..	..	..	..	Thatcher.....	18	21	82	10	61	1	Sh.	14.8
..	..	..	..	Apex.....	17	21	83	10	63	1 Hd.	....	15.3
..	..	..	..	Renown.....	15	20	82	10	62.5	1 Hd.	....	15.5
..	..	..	..	Regent.....	18	22	83	10	61	1	Sh.	15.1
..	..	..	..	Rival.....	16	20	83	10	62.5	1 Hd.	....	15.2

No significant yield difference between varieties.

JOHN J. REBMAN, VERLO												
1B	4	4	C	Marquis.....	28	....	....	10	62	2	Bl.	14.1
..	..	..	..	Thatcher.....	25	....	....	10	61	2	Bl.	15.8
..	..	..	..	Apex.....	25	....	....	10	62	2	Bl.	15.0
..	..	..	..	Renown.....	19	....	....	10	62.5	2	Bl.	15.7
..	..	..	..	Regent.....	24	....	....	10	61	2	Bl.	16.0
..	..	..	..	Rival.....	13	....	....	10	60.5	2	Bl.	15.9

Necessary difference 4.3 bushels.

MILBURN J. TREMBATH, CABRU												
1B	4	5	A	Marquis.....	17	31	96	8	63	1 Hd.	....	13.2
..	..	..	..	Thatcher.....	22	31	97	9	63.5	1 Hd.	....	14.8
..	..	..	..	Apex.....	18	31	95	9.7	63.5	1 Hd.	....	14.1
..	..	..	..	Renown.....	19	30	96	8.3	64	1 Hd.	....	15.1
..	..	..	..	Regent.....	18	32	97	9.3	63	1 Hd.	....	15.1
..	..	..	..	Rival.....	19	30	97	7.7	63.5	1 Hd.	....	14.2

No significant yield difference between varieties.

Wheat Pool District 4—Continued

Cereal variety	Dist.	Sub-dist.	Test designation	Varieties	Yield bus. per acre	Plant height in inches	Days seed-ing to ripe	Straw strength	Pounds per measured bushel	Commer-cial grades	Grading remarks	Protein content in per-centage
WALTER GEORGE BOWDITCH, SUCCESS												
1B	4	5	B	Marquis.....	14	22	99	10	65	1 Hd.	....	14.1
..	Thatcher....	15	21	98	9.3	64	1 Hd.	....	14.7
..	Apex.....	14	24	99	9.7	64.5	1 Hd.	....	14.9
..	Renown.....	14	22	96	9.8	65	1 Hd.	....	15.3
..	Regent.....	16	23	100	9.8	64	1 Hd.	....	15.8
..	Rival.....	14	27	100	9.2	64	1 Hd.	....	15.0
No significant yield difference between varieties.												
CHARLES DUNCAN AHLBERG, GOLDEN PRAIRIE												
1B	4	6	A	Marquis.....	32	35	92	10	64	1 Hd.	....	14.1
..	Thatcher....	33	34	88	10	62.5	1 Hd.	....	14.6
..	Apex.....	31	31	91	10	63.5	1 Hd.	....	15.1
..	Renown.....	28	32	88	10	63	1 Hd.	....	15.1
..	Regent.....	31	31	87	10	62.5	1 Hd.	....	15.2
..	Rival.....	28	32	91	9.3	63	1 Hd.	....	14.5
No significant yield difference between varieties.												
LORNE ROBERT RUSSELL, MAPLE CREEK												
1B	4	6	B	Marquis.....	11	18	92	6.3	64	1 Hd.	....	13.9
..	Thatcher....	17	21	91	8.3	64	1 Hd.	....	13.5
..	Apex.....	17	21	91	8.7	64.5	1 Hd.	....	12.9
..	Renown.....	14	20	91	7	64	1 Hd.	....	15.2
..	Regent.....	14	20	93	8.3	64	1 Hd.	....	15.3
..	Rival.....	11	21	93	8	64	1 Hd.	....	14.7
Necessary difference 2.8 bushels.												
JOHN OBRITSCHKWITSCH, FOX VALLEY												
1B	4	7	A	Marquis.....	21	....	97	10	63.5	1	Sft. St.	10.7
..	Thatcher....	23	....	97	10	64	1 Hd.	....	11.0
..	Apex.....	27	....	97	10	64	1 Hd.	....	11.0
..	Renown.....	24	....	97	10	65	1 Hd.	....	11.1
..	Regent.....	24	....	97	10	64	1 Hd.	....	11.6
..	Rival.....	19	....	97	10	63	1	S. bl.	11.4
No significant yield difference between varieties.												
ERNEST KRAUSE, LINACRE												
1B	4	7	B	Marquis.....	52	40	100	7.3	65	1 Hd.	....	13.4
..	Thatcher....	48	33	100	8.3	65	1 Hd.	....	13.2
..	Apex.....	37	35	100	7.7	64.5	1 Hd.	....	12.6
..	Renown.....	45	36	99	9	65.5	1 Hd.	....	13.9
..	Regent.....	45	34	99	8	65	1 Hd.	....	14.2
..	Rival.....	38	37	101	8.7	63.5	1 Hd.	....	13.3
No significant yield difference between varieties owing to unusual yield fluctuations within the test.												
PAUL D. TILLEMANN, HORSHAM												
1B	4	7	C	Marquis.....	27	30	106	8.7	63	1 Hd.	....	13.2
..	Thatcher....	31	29	107	9	62.5	1	S. bl.	13.7
..	Apex.....	30	30	105	9	63	1 Hd.	....	13.7
..	Renown.....	28	30	107	9.3	63.5	1 Hd.	....	14.3
..	Regent.....	28	28	107	8.7	63	1 Hd.	....	14.5
..	Rival.....	22	30	105	9.3	61.5	1	Bl.	13.8
Necessary difference 4.2 bushels.												
WENDELL J. JANZER, MENDHAM												
1B	4	8	A	Marquis.....	43	....	....	....	62	1 Hd.	....	15.5
..	Thatcher....	38	....	....	....	61	1	Sh.	15.6
..	Apex.....	43	....	....	....	63	1 Hd.	....	15.1
..	Renown.....	31	....	....	....	64	1 Hd.	....	15.8
..	Regent.....	42	....	....	....	63	1 Hd.	....	15.9
..	Rival.....	37	....	....	....	62	1 Hd.	....	15.2
No significant yield difference between varieties.												
ALVIN FREDERICK, BURSTALL												
1B	4	8	B	Marquis.....	28	34	99	10	64.5	1 Hd.	....	....
..	Thatcher....	35	33	99	10	64.5	1 Hd.	....	....
..	Apex.....	35	35	99	10	64.5	1 Hd.	....	....
..	Renown.....	35	32	99	10	65.5	1 Hd.	....	....
..	Regent.....	24	33	99	10	64	1 Hd.	....	....
..	Rival.....	32	34	99	10	64	1 Hd.	....	....
No significant yield difference between varieties												
MISS MARGARET CRAIG STENHOUSE, PORTREEVE												
1B	4	9	A	Marquis.....	29	....	....	10	65	1 Hd.	....	12.7
..	Thatcher....	33	....	....	10	64	1 Hd.	....	14.6
..	Apex.....	31	....	....	10	64	1 Hd.	....	13.7
..	Renown.....	27	....	....	10	65	1 Hd.	....	15.4
..	Regent.....	30	....	....	10	64.5	1 Hd.	....	15.4
..	Rival.....	27	....	....	10	63.5	1 Hd.	....	14.9
No significant yield difference between varieties.												

Wheat Pool District 4—Continued

Cereal variety zone	Dist.	Sub-dist.	Test designation	Varieties	Yield bus. per acre	Plant height in inches	Days seed-ing to ripe	Straw strength	Pounds per measured bushel	Commer-cial grades	Grading remarks	Protein content in per-centage
WILLIAM EDWIN ROWBOTHAM, LEMS FORD												
1B	4	9	B	Marquis.....	18	36	111	9	64	1 Hd.	....	13.0
..	Thatcher.....	23	36	111	8	63.5	1 Hd.	....	14.9
..	Apex.....	25	36	111	8	64	1 Hd.	....	14.2
..	Renown.....	20	36	111	7	65	1 Hd.	....	15.6
..	Regent.....	17	36	111	7	64	1 Hd.	....	15.6
..	Rival.....	19	36	111	8	63	1 Hd.	....	14.7

No significant yield difference between varieties.

WILLIAM J. ZELLER, HAZLET

1B	4	10	A	Marquis.....	..	22	93	10	..	..	....	..
..	..	..	..	Thatcher.....	..	25	93	10	..	..	....	..
..	..	..	..	Apex.....	..	37	93	8	..	..	....	..
..	..	..	..	Renown.....	..	31	93	9	..	..	....	..
..	..	..	..	Regent.....	..	32	93	9	..	..	....	..
..	..	..	..	Rival.....	..	36	93	9	..	..	....	..

No samples received.

MELVIN CRAMPTON, ABBEY

1B	4	10	B	Marquis.....	30	27	..	10	61.5	1	Sh.	....
..	..	..	..	Thatcher.....	37	29	..	10	62	1	Bl.	....
..	..	..	..	Apex.....	35	30	..	10	61.5	1	S sh.	....
..	..	..	..	Renown.....	34	28	..	10	63	1	S bl.	....
..	..	..	..	Regent.....	33	29	..	10	61.5	1	Bl sh.	....
..	..	..	..	Rival.....	34	28	..	10	62	1	S bl.	....

No significant yield difference between varieties.

Tests Discarded on Account of Severe Damage by Drought, Pests, Hail or Other Causes.

4 1 B Geo. Eccleston, Edgell.

4 2 B Rueben Hagel, Hendrie.

WHEAT POOL DISTRICT 5

RICHARD ALEXANDER JOLLY, MOSSBANK

1A	5	1	A	Marquis.....	20	32	96	10	61.5	1	Sh.	15.2
..	..	..	..	Thatcher.....	20	28	94	10	60.5	1	Sh.	16.0
..	..	..	..	Apex.....	19	29	94	9	61.5	1	Sh.	15.6
..	..	..	..	Renown.....	16	28	94	10	62	1	S g.	16.0
..	..	..	..	Regent.....	15	30	94	7	61.5	1	Sh.	16.2
..	..	..	..	Rival.....	19	28	94	9	61.5	1	Sh.	15.6

Necessary difference—2.5 bushels.

JOHN ALMOND ARCHER, VANTAGE

1A	5	1	B	Marquis.....	10	20	89	9	61.5	1	Sh.	16.8
..	..	..	..	Thatcher.....	10	19	86	8.7	58.5	2	Sh.	17.1
..	..	..	..	Apex.....	10	20	87	8.3	61	1	Sh.	17.7
..	..	..	..	Renown.....	11	20	86	9.2	60	1	Sh.	17.7
..	..	..	..	Regent.....	12	20	85	8.3	59	2	Sh.	17.8
..	..	..	..	Rival.....	8	19	87	8	61	1	Sh.	16.4

Necessary difference—1.8 bushels.

HUGH G. LAZENBY, ST. BOSWELLS

1A	5	2	A	Marquis.....	8	20	86	9	62	1 Hd.	....	15.4
..	..	..	..	Thatcher.....	17	24	86	9	62	1 Hd.	....	15.9
..	..	..	..	Apex.....	11	24	86	9	63	1 Hd.	....	15.8
..	..	..	..	Renown.....	8	24	86	9	62.5	1 Hd.	....	16.4
..	..	..	..	Regent.....	14	27	86	9	61.5	1	....	16.4
..	..	..	..	Rival.....	8	24	86	9	62.5	1 Hd.	....	15.3

Necessary difference—2.5 bushels.

LEO NELSON PELLETIER GRAVELBOURG

1A	5	2	B	Marquis.....	..	23	82	4.3	..	..	....	..
..	..	..	..	Thatcher.....	..	23	82	4.3	..	..	....	..
..	..	..	..	Apex.....	..	22	82	3.6	..	..	....	..
..	..	..	..	Renown.....	..	23	80	4.3	..	..	....	..
..	..	..	..	Regent.....	..	23	80	3.6	..	..	....	..
..	..	..	..	Rival.....	..	25	82	7	..	..	....	..

No samples received.

ALAN BRUCE DAWSON, NEVILLE

2C	5	3	A	Marquis.....	23	32	..	9.7	65	1 Hd.	....	12.9
..	..	..	..	Thatcher.....	26	32	..	10	64.5	1 Hd.	....	13.6
..	..	..	..	Apex.....	30	31	..	10	65	1 Hd.	....	13.8
..	..	..	..	Renown.....	23	32	..	10	65	1 Hd.	....	15.0
..	..	..	..	Regent.....	24	32	..	10	65	1 Hd.	....	14.6
..	..	..	..	Rival.....	24	34	..	10	64.5	1 Hd.	....	14.5

No significant yield difference between varieties.

Wheat Pool District 5—Continued

Cereal variety zone	Dist.	Sub-dist.	Test designation	Varieties	Yield bus. per acre	Plant height in inches	Days seed-ing to ripe	Straw strength	Pounds per measured bushel	Commer-cial grades	Grading remarks	Protein content in per-centage
NEIL ROBERTSON MARJERISON, NEVILLE												
2C	5	3	B	Marquis.....	24	29	100	9.3	64	1 Hd.	....	11.6
..	Thatcher.....	25	28	95	9.7	64	1 Hd.	....	11.7
..	Apex.....	25	29	96	7.7	64	1 Hd.	....	12.6
..	Renown.....	23	29	100	9	65	1 Hd.	....	12.0
..	Regent.....	23	29	97	8.7	64	1 Hd.	....	12.4
..	Rival.....	24	30	100	9	63	1 Hd.	....	11.1
No significant yield difference between varieties.												
MISS DOREEN THELMA FOX, WALDECK												
1B	5	4	A	Marquis.....	16	....	....	....	62.5	1 Hd.	....	14.5
..	Thatcher.....	16	....	....	....	61	1	Sh.	16.2
..	Apex.....	16	....	....	....	63.5	1 Hd.	....	15.4
..	Renown.....	16	....	....	....	64	1 Hd.	....	15.8
..	Regent.....	12	....	....	....	62	1 Hd.	....	16.7
..	Rival.....	15	....	....	....	63.5	1 Hd.	....	14.6
No significant yield difference between varieties.												
ROBERT JOHN COLLINS, SHAMROCK												
1A	5	5	A	Marquis.....	15	25	99	8.3	62.5	1	S g.	14.0
..	Thatcher.....	20	23	97	9.3	62.5	1	S g.	14.7
..	Apex.....	12	22	97	9	63	1	S g.	14.8
..	Renown.....	14	24	99	7.7	63	1	S g.	15.0
..	Regent.....	18	24	97	9	62.5	2	G.	15.4
..	Rival.....	17	26	99	9	62.5	1	S g.	14.8
Necessary difference—3.1 bushels.												
MAX PETER GEHL, HODGEVILLE												
1A	5	5	B	Marquis.....	9	21	82	9	57.5	3	B sh.	18.3
..	Thatcher.....	12	21	82	9	54	4 Sp.	B bl. Sh.	18.7
..	Apex.....	10	23	82	8	57	3	S bl. B sh.	17.9
..	Renown.....	8	20	83	9	57	3	S bl. B sh.	18.0
..	Regent.....	7	21	82	8	54	4 Sp.	Bl. B sh.	16.9
..	Rival.....	8	19	83	8	56	4	Bl. B sh.	16.8
Necessary difference—2.2 bushels.												
DAVID GILBERT MORGAN, OLD WIVES												
1A	5	6	A	Marquis.....	28	25	94	....	62	1	S g.	16.6
..	Thatcher.....	25	25	90	....	58	2	Sh.	17.3
..	Apex.....	23	26	93	....	62	1	S b p.	16.9
..	Renown.....	19	24	92	....	61.5	1	S g.	17.1
..	Regent.....	23	27	90	....	59	2	Sh. S g.	17.2
..	Rival.....	19	26	91	....	60.5	1	S g.	16.5
No significant yield difference between varieties.												
CHARLES BURTON WILSON, CODERRE												
1A	5	6	B	Marquis.....	16	29	106	9.7	62	1 Hd.	....	13.9
..	Thatcher.....	22	27	103	9.7	63	1 Hd.	....	14.7
..	Apex.....	15	28	108	8.3	64	1 Hd.	....	14.5
..	Renown.....	18	30	108	10	64	1 Hd.	....	15.9
..	Regent.....	17	26	108	9.7	61.5	1	Sh.	15.6
..	Rival.....	19	30	107	10	64	1 Hd.	....	15.1
No significant yield difference between varieties.												
GORDON DUNCAN McLACHLAN, BOHARM												
1A	5	7	A	Marquis.....	20	28	100	8.7	61	1	S sh.	15.3
..	Thatcher.....	21	28	101	7.7	58.5	2	Sh.	15.7
..	Apex.....	20	29	100	7.7	61	1	S sh.	15.5
..	Renown.....	17	27	100	9.7	60.5	1	S sh.	15.3
..	Regent.....	20	30	100	7	58.5	2	Sh.	15.7
..	Rival.....	20	28	98	7.7	61	1	S sh.	15.0
No significant yield difference between varieties.												
THOMAS LEONARD, PARKBEG												
1A	5	7	B	Marquis.....	15	....	89	10	61.5	1	Sh.	17.3
..	Thatcher.....	16	....	89	10	58.5	2	B sh.	18.1
..	Apex.....	13	....	89	10	61	1	Sh.	17.9
..	Renown.....	15	....	89	10	62	1	S g.	17.1
..	Regent.....	16	....	89	10	58	2	B sh. S g.	17.9
..	Rival.....	19	....	89	10	60	2	Sh. G.	17.1
No significant yield difference between varieties.												
BRUCE THOMAS HATLEY, LAWSON												
1B	5	9	B	Marquis.....	29	28	97	9.3	62	1 Hd.	....	16.1
..	Thatcher.....	32	27	96	9	61	1	....	17.0
..	Apex.....	26	27	95	9	62.5	1 Hd.	....	16.6
..	Renown.....	27	28	95	9	62	1	S g.	17.0
..	Regent.....	24	26	95	9	60	2	Sh. G.	16.8
..	Rival.....	27	29	96	9	62	1 Hd.	....	15.6
No significant yield difference between varieties.												

Wheat Pool District 5—Continued

Cereal variety zone	Dist.	Sub-dist.	Test designation	Varieties	Yield bus. per acre	Plant height in inches	Days seed-ing to ripe	Straw strength	Pounds per measured bushel	Commer-cial grades	Grading remarks	Protein content in per-centage
ROBERT WILLIAM MONTGOMERY, MORSE												
1B	5	10	A	Marquis.....	10	....	....	10	60	1	S bl.	15.4
"	"	"	"	Thatcher.....	16	....	....	10	60	1	S bl.	15.7
"	"	"	"	Apex.....	14	....	....	10	60.5	1	S bl.	15.6
"	"	"	"	Renown.....	9	....	....	9.7	61	1	S bl.	15.4
"	"	"	"	Regent.....	15	....	....	10	59.5	2	Bl sh.	16.1
"	"	"	"	Rival.....	11	....	....	10	60	1	S bl.	15.3
No significant yield difference between varieties.												

ARTHUR POTTS, GLEN KERR												
1B	5	10	B	Marquis.....	7	24	104	10	59	2	Sh.	15.8
"	"	"	"	Thatcher.....	11	24	104	10	58	2	Bl. Sh.	15.7
"	"	"	"	Apex.....	11	25	107	9	61	1	S bl.	15.4
"	"	"	"	Renown.....	8	23	103	10	61	1	S bl.	15.2
"	"	"	"	Regent.....	10	24	105	9	58	2	Bl sh.	15.8
"	"	"	"	Rival.....	10	26	106	10	59.5	2	Bl.	15.1
No significant yield difference between varieties.												

Tests Discarded on Account of Severe Damage by Drought, Pests, Hail, or Other Causes.

5 4 B	Johnny Allen George, Rush Lake.	5 8 B	Howard Rudeen, Parkbeg.
5 8 A	Malcolm Holtslander, Darmody.		

WHEAT POOL DISTRICT 6

HERBERT CARL WILKE, YELLOW GRASS												
2A	6	1	B	Marquis.....	9	33	108	4	60	1	Sh.	12.4
"	"	"	"	Thatcher.....	17	29	107	8	61	2	Bl.	15.2
"	"	"	"	Apex.....	15	30	109	7	62.5	1	S bl.	15.0
"	"	"	"	Renown.....	25	32	108	7	64	1	S bl.	15.2
"	"	"	"	Regent.....	17	29	109	8	61	2	Bl.	15.5
"	"	"	"	Rival.....	20	29	107	8	61	1	S bl.	14.6
Necessary difference—4.2 bushels.												

CARL A. WEISSHAAR, JR., WILCOX												
2A	6	3	A	Marquis.....	24	35	96	10	64	2	G. I.	13.0
"	"	"	"	Thatcher.....	28	33	95	10	64	2	G. I.	14.1
"	"	"	"	Apex.....	25	34	96	10	64.5	1	S g. I.	13.7
"	"	"	"	Renown.....	23	34	94	10	64.5	1	S g.	14.3
"	"	"	"	Regent.....	22	32	93	10	64	2	S g.	14.6
"	"	"	"	Rival.....	23	34	96	10	63.5	1	S g. I.	14.1
No significant yield difference between varieties.												

DONALD RAYMOND RENWICK, CORINNE												
2A	6	3	B	Marquis.....	26	....	....	....	63.5	1 Hd.	....	14.1
"	"	"	"	Thatcher.....	31	....	....	....	62.5	1 Hd.	....	14.7
"	"	"	"	Apex.....	26	....	....	....	63.5	1 Hd.	....	14.2
"	"	"	"	Renown.....	28	....	....	....	63.5	1 Hd.	....	14.5
"	"	"	"	Regent.....	30	....	....	....	62	1 Hd.	....	15.4
"	"	"	"	Rival.....	21	....	....	....	62.5	1 Hd.	....	14.8
Necessary difference—Yields bulked.												

EMIL DOMBOWSKY, AVONLEA												
1A	6	4	B	Marquis.....	5	25	95	4.3	56	4	B sh.	18.6
"	"	"	"	Thatcher.....	7	27	94	4	53	4 Sp.	B sh.	18.8
"	"	"	"	Apex.....	5	26	94	2.7	54	4 Sp.	B sh.	18.8
"	"	"	"	Renown.....	6	23	94	4.7	54	4 Sp.	B sh.	18.6
"	"	"	"	Regent.....	8	26	94	4.7	53	4 Sp.	B sh.	17.9
"	"	"	"	Rival.....	7	25	94	3.7	54	4 Sp.	B sh.	17.3
No significant yield difference between varieties.												

GEORGE PETER MACHMER, SPRING VALLEY												
1A	6	4	C	Marquis.....	34	40	107	4.7	63.5	1 Hd.	....	16.5
"	"	"	"	Thatcher.....	39	42	104	6.3	61	1	Sh.	17.2
"	"	"	"	Apex.....	35	41	105	6	63	1 Hd.	....	17.1
"	"	"	"	Renown.....	31	40	104	5.3	63	1 Hd.	....	17.0
"	"	"	"	Regent.....	32	41	104	7	61.5	1	Sh.	16.9
"	"	"	"	Rival.....	31	39	105	7	62.5	1 Hd.	....	16.5
No significant yield difference between varieties.												

JACK VERNON LIND, BAILDON												
1A	6	5	B	Marquis.....	15	23	....	8.5	61	1	S sh.	16.2
"	"	"	"	Thatcher.....	17	23	....	8.5	59.5	2	Sh. S bl.	16.8
"	"	"	"	Apex.....	12	22	....	8.5	61.5	1	....	16.5
"	"	"	"	Renown.....	14	23	....	8.5	61	1	S sh	16.1
"	"	"	"	Regent.....	11	22	....	8.5	59	2	Sh. S g.	16.4
"	"	"	"	Rival.....	13	23	....	8.5	62	1	S sh.	15.5
Necessary difference—2.2 bushels.												

JOHN GUSTAF PALMQUIST, BELLE PLAINE												
2A	6	6	B	Marquis.....	14	25	94	5.3	63	1 Hd.	....	13.7
"	"	"	"	Thatcher.....	15	25	90	6	62.5	1 Hd.	....	14.7
"	"	"	"	Apex.....	14	26	92	4.2	63.5	1 Hd.	....	14.3
"	"	"	"	Renown.....	11	25	90	5	63	1 Hd.	....	14.6
"	"	"	"	Regent.....	10	24	92	6	62	1 Hd.	....	14.8
"	"	"	"	Rival.....	13	27	98	8.2	62.5	1 Hd.	....	14.7
Necessary difference—1.9 bushels.												

Wheat Pool District 6—Continued

Cereal variety zone	Dist.	Sub-dist.	Test designation	Varieties	Yield bus. per acre	Plant height in inches	Days seed-ing to ripe	Straw strength	Pounds per measured bushel	Commer-cial grades	Grading remarks	Protein content in per-centage
GORDON B. STRAYER, DRINKWATER												
2A	6	6	C	Marquis.....	29	34	97	10	63	4	Htd.	14.0
"	"	"	"	Thatcher.....	34	32	97	10	62.5	4	Htd.	15.0
"	"	"	"	Apex.....	30	33	97	10	63	4	Htd.	14.7
"	"	"	"	Renown.....	24	33	97	10	64	3	S htd.	14.7
"	"	"	"	Regent.....	27	33	97	10	63	4	Htd.	15.4
"	"	"	"	Rival.....	30	33	97	10	62.5	3	S htd.	14.3

Necessary difference—3.8 bushels.

KENNETH BRUCE AIKINS, RICHARDSON												
2A	6	7	B	Marquis.....	.....	.....	.....	.....	61.5	1	S g.	12.9
"	"	"	"	Thatcher.....	.....	.....	.....	.....	62	1	S g.	13.7
"	"	"	"	Apex.....	.....	.....	.....	.....	62	1	S g.	14.2
"	"	"	"	Renown.....	.....	.....	.....	.....	62	1	S g.	14.4
"	"	"	"	Regent.....	.....	.....	.....	.....	61.5	1	S g.	14.0
"	"	"	"	Rival.....	.....	.....	.....	.....	62	1	S g.	13.6

Yields discarded—Considerable grasshopper damage.

GEORGE WILLIAM BARBER, EDGELEY												
2A	6	8	B	Marquis.....	21	39	88	8.3	65	1 Hd.	.....	13.9
"	"	"	"	Thatcher.....	21	39	87	9	64	1 Hd.	.....	15.2
"	"	"	"	Apex.....	20	40	91	9	64.5	1 Hd.	.....	14.5
"	"	"	"	Renown.....	18	37	87	9.3	64.5	1 Hd.	.....	15.0
"	"	"	"	Regent.....	19	37	88	9.3	64	1 Hd.	.....	15.6
"	"	"	"	Rival.....	18	37	89	8.7	63.5	1 Hd.	.....	14.7

No significant yield difference between varieties.

ALVIN JAMES BINNIE, TREGARVA												
2A	6	10	B	Marquis.....	36	31	99	8.5	64	1 Hd.	.....	13.3
"	"	"	"	Thatcher.....	39	31	95	8	63	1 Hd.	.....	14.0
"	"	"	"	Apex.....	33	33	95	9.3	64	1 Hd.	.....	14.2
"	"	"	"	Renown.....	30	31	95	8.7	64	1 Hd.	.....	14.7
"	"	"	"	Regent.....	26	30	95	8.7	63	1 Hd.	.....	14.6
"	"	"	"	Rival.....	31	32	92	7.7	63	1 Hd.	.....	14.0

Necessary difference—4.6 bushels.

Tests Discarded on Account of Severe Damage by Drought, Pests, Hail, or Other Causes.

6 1 B Murray Andrew Osler Kennedy, Kronau. 6 9 B Harry Craig Lindsay, Fort Qu'Appelle.

WHEAT POOL DISTRICT 7

LEONARD H. WIGHT, DOONSIDE												
3A	7	1	B	Marquis.....	.....	.....	.....	9	63	1 Hd.	.....	14.9
"	"	"	"	Thatcher.....	.....	.....	.....	8.7	61	1	Bl. Sh.	15.9
"	"	"	"	Apex.....	.....	.....	.....	8.7	62.5	1 Hd.	.....	15.4
"	"	"	"	Renown.....	.....	.....	.....	8.7	63	1 Hd.	.....	15.9
"	"	"	"	Regent.....	.....	.....	.....	8.7	60.5	1	Sh.	16.3
"	"	"	"	Rival.....	.....	.....	.....	8.7	63	1 Hd.	.....	15.3

Yields discarded—considerable grasshopper and gopher damage.

ERIC E. BUSWELL, WAPELLA												
3A	7	2	B	Marquis.....	24	.....	.....	8.7	64	1 Hd.	S b p.	14.9
"	"	"	"	Thatcher.....	28	.....	.....	9	64	1	B p.	15.9
"	"	"	"	Apex.....	27	.....	.....	8	63.5	1	B p.	15.5
"	"	"	"	Renown.....	23	.....	.....	8.7	64.5	1 Hd.	S b p.	16.4
"	"	"	"	Regent.....	25	.....	.....	8.3	63.5	1 Hd.	S b p.	16.6
"	"	"	"	Rival.....	26	.....	.....	8.7	64	1 Hd.	S b p.	15.5

No significant yield difference between varieties.

PETER SIMON, KIPLING												
2A	7	4	B	Marquis.....	10	.....	.....	9.7	64	1	G. S b p.	17.0
"	"	"	"	Thatcher.....	12	.....	.....	9.7	61	1	Bl. Sh.	16.7
"	"	"	"	Apex.....	9	.....	.....	7.7	62	1	S bl.	17.2
"	"	"	"	Renown.....	10	.....	.....	8.3	61.5	1	S bl.	16.6
"	"	"	"	Regent.....	10	.....	.....	8	59.5	2	Bl. Sh.	17.0
"	"	"	"	Rival.....	10	.....	.....	9	62	1	S g.	16.7

No significant yield difference between varieties.

ALLAN BRUCE McKAY, CORNING												
2A	7	5	B	Marquis.....	8	.....	.....	9	61	2	S bl. G.	15.3
"	"	"	"	Thatcher.....	11	.....	.....	9	58	3	B bl.	16.2
"	"	"	"	Apex.....	9	.....	.....	9	60	2	Bl. G.	15.7
"	"	"	"	Renown.....	8	.....	.....	8.3	63	1	S g.	15.5
"	"	"	"	Regent.....	9	.....	.....	8.7	58	2	Bl. G.	16.3
"	"	"	"	Rival.....	9	.....	.....	9	60	2	Bl. G.	15.3

No significant yield difference between varieties.

ALBERT F. RIEDER, PEEBLES												
2A	7	6	B	Marquis.....	21	31	106	9	62.5	1	S g. B p.	15.2
"	"	"	"	Thatcher.....	22	30	104	8.7	61	1	S bl.	15.8
"	"	"	"	Apex.....	24	30	105	8	61.5	1	S g.	14.8
"	"	"	"	Renown.....	18	30	105	8.7	61.5	1	S bl.	15.5
"	"	"	"	Regent.....	19	29	104	8.7	59.5	2	Bl. G.	16.1
"	"	"	"	Rival.....	21	31	104	9	61	1	S bl. Sh.	15.5

Necessary difference—2.3 bushels.

Wheat Pool District 7—Continued

Cereal variety zone	Dist.	Sub-dist.	Test designation	Varieties	Yield bus. per acre	Plant height in inches	Days seed-ing to ripe	Straw strength	Pounds per measured bushel	Commer-cial grades	Grading remarks	Protein content in per-centage
ELMER KEITH CHATTERSON, WOLSELEY												
3A	7	7	B	Marquis.....	16	14	101	8.3	63	1	S b p.	15.6
"	"	"	"	Thatcher.....	18	15	101	7.3	62.5	1	Bl. S b p.	15.0
"	"	"	"	Apex.....	19	16	101	7.7	63	1	S bl.	16.0
"	"	"	"	Renown.....	18	18	101	8.3	62.5	1	S g.	16.2
"	"	"	"	Regent.....	17	17	101	8	61	1	"	16.5
"	"	"	"	Rival.....	13	18	101	7.7	62.5	1	S bl.	15.6

Necessary difference—samples bulked.

VINCENT JAMES HAWKES, PERCIVAL												
3A	7	8	B	Marquis.....	14	....	107	8	63	2	G. B p.	16.5
"	"	"	"	Thatcher.....	17	....	107	10	62	2	S bl.	16.1
"	"	"	"	Apex.....	12	....	107	5	63	2	Bl. B p.	16.1
"	"	"	"	Renown.....	11	....	107	10	62	2	Bl. S b p.	17.1
"	"	"	"	Regent.....	13	....	107	7	61	2	Bl	16.7
"	"	"	"	Rival.....	16	....	107	10	62	2	Bl. B p.	16.5

Necessary difference—2.5 bushels.

ANTHONY J. HRUSKA, GERALD												
3A	7	9	B	Marquis.....	30	30	104	10	63	2	G. I.	16.3
"	"	"	"	Thatcher.....	38	32	102	8.7	62	1	S bl.	16.3
"	"	"	"	Apex.....	32	33	103	8.7	62	1	S g.	16.8
"	"	"	"	Renown.....	28	32	102	8	63.5	1	S g.	17.5
"	"	"	"	Regent.....	36	33	101	8.7	61.5	1	Sh. S g	16.9
"	"	"	"	Rival.....	37	33	104	9	63	1	S b p	15.9

Necessary difference—2.5 bushels.

ERNEST WILLIAM STILBORN, FINNIE												
3C	7	10	B	Marquis.....	35	....	114	6.7	64	1 Hd.	"	14.2
"	"	"	"	Thatcher.....	41	....	108	8.3	62	2	Bl. G.	14.9
"	"	"	"	Apex.....	36	....	109	5	62	1	Bl.	14.5
"	"	"	"	Renown.....	31	....	108	9	63	1	S g.	15.2
"	"	"	"	Regent.....	32	....	108	9	62	2	Bl. G.	15.3
"	"	"	"	Rival.....	31	....	107	8.3	61	2	Bl. G.	14.8

Necessary difference—2.7 bushels.

Tests Discarded on Account of Severe Damage by Drought, Pests, Hail, or Other Causes.

7 3 B Stuart W. Kidd, Vandura.

WHEAT POOL DISTRICT 8

CALVERT D. GIBSON, ROKEBY												
3C	8	2	B	Marquis.....	23	25	107	7.3	62	2	Bl. G.	15.5
"	"	"	"	Thatcher.....	30	24	107	6.3	63	2	Bl. G.	16.1
"	"	"	"	Apex.....	25	24	107	6.7	62	3	Bl. G. B p.	15.6
"	"	"	"	Renown.....	25	24	107	7	63	2	Sh. G.	16.4
"	"	"	"	Regent.....	26	24	107	7	62.5	3	Bl. V g.	16.5
"	"	"	"	Rival.....	31	26	106	7.7	61.5	3	Bl. G. B p.	16.0

No significant yield difference between varieties.

GORDON HOLLINGER, DUFF												
3A	8	3	A	Marquis.....	27	....	....	10	63	4	Bl. G. B p.	15.1
"	"	"	"	Thatcher.....	29	....	....	10	60	4	B bl. G. B p.	15.9
"	"	"	"	Apex.....	17	....	....	10	60.5	4	B bl. G. B p.	14.5
"	"	"	"	Renown.....	20	....	....	10	61	4	B bl. G.	15.3
"	"	"	"	Regent.....	21	....	....	10	61	3	Bl. G.	15.4
"	"	"	"	Rival.....	19	....	....	10	60	4	B bl. G. B p.	15.0

No significant yield difference between varieties.

ALFRED REINSON, BIRMINGHAM												
3C	8	3	B	Marquis.....	11	19	110	9	65	1	S g.	15.1
"	"	"	"	Thatcher.....	14	20	107	9	64	1	S g.	15.5
"	"	"	"	Apex.....	8	20	106	8.3	64	1	S g.	15.3
"	"	"	"	Renown.....	10	18	105	9	64.5	1	S b p.	16.1
"	"	"	"	Regent.....	11	18	106	10	64	1	S g.	16.5
"	"	"	"	Rival.....	12	20	110	9	64.5	1 Hd.	S g.	15.5

No significant yield difference between varieties.

ALEXANDER BODIE, WILLOWBROOK												
3C	8	4	B	Marquis.....	19	23	....	10	64	3	V g.	15.0
"	"	"	"	Thatcher.....	12	24	....	10	63	3	V g.	15.1
"	"	"	"	Apex.....	14	26	....	10	63	2	S g. B p.	15.8
"	"	"	"	Renown.....	7	25	....	10	63.5	1	S g.	15.4
"	"	"	"	Regent.....	11	23	....	10	63.5	3	V g.	16.6
"	"	"	"	Rival.....	17	25	....	10	63	2	G.	15.0

No significant difference between varieties owing to unusual yield fluctuations within the test.

Wheat Pool District 8—Continued

Cereal variety zone	Dist.	Sub-dist.	Test designation	Varieties	Yield bus. per acre	Plant height in inches	Days seed-ing to ripe	Straw strength	Pounds per measured bushel	Commer-cial grades	Grading remarks	Protein content in per-centage
PAUL GUSHULAK, BURGIS												
3C	8	6	B	Marquis.....	9	20	....	9	61	2	S g. Sh.	14.7
"	"	"	"	Thatcher.....	11	19	....	8.3	62	3	G.	16.5
"	"	"	"	Apex.....	7	21	....	9	61	3	G. B p.	16.0
"	"	"	"	Renown.....	9	20	....	8.3	62	3	G.	16.8
"	"	"	"	Regent.....	8	19	....	8.7	62	3	G.	17.1
"	"	"	"	Rival.....	10	21	....	8.3	62	3	G. B p.	15.5

No significant yield difference between varieties.

LORNE BOYD POLLOCK, HASSAN												
3B	8	8	B	Marquis.....	32	31	101	8.3	63.5	1 Hd.	....	15.3
"	"	"	"	Thatcher.....	41	33	102	8.7	62	2	Bl.	15.5
"	"	"	"	Apex.....	32	30	102	8.3	63	1	....	15.2
"	"	"	"	Renown.....	33	30	101	7.7	63	1	S bl.	15.5
"	"	"	"	Regent.....	33	29	101	8.3	61.5	2	Bl.	15.4
"	"	"	"	Rival.....	35	31	100	8	61	2	Bl.	15.1

No significant yield difference between varieties.

PHILIP PASIEKA, ARRAN												
3B	8	10	B	Marquis.....	36	44	118	8	61.5	1	G. St.	9.7
"	"	"	"	Thatcher.....	42	37	111	10	64	1	S g.	12.2
"	"	"	"	Apex.....	40	41	113	10	64.5	1 Hd.	....	11.3
"	"	"	"	Renown.....	44	39	113	10	65	1 Hd.	....	12.1
"	"	"	"	Regent.....	42	39	118	9.7	64.5	1 Hd.	....	12.5
"	"	"	"	Rival.....	41	42	113	10	63.5	1	S g.	11.2

Necessary difference—samples bulked.

Tests Discarded on Account of Severe Damage by Drought, Pests, Hail, or Other Causes.

8	1	B	Paul Titoff, Wroxton.	8	7	C	Antonne Paslowski, Rama.
8	5	C	Earl Richard Trofimenkoff, Runnymede				

WHEAT POOL DISTRICT 9

WILLIAM PARFENUK, HUBBARD												
3C	9	1	B	Marquis.....	31	35	115	7.7	64	2	G.	15.4
"	"	"	"	Thatcher.....	32	34	115	9	63.5	2	G.	15.6
"	"	"	"	Apex.....	27	34	115	7.7	63	3	V g. B p.	15.3
"	"	"	"	Renown.....	25	35	115	10	63	2	Bl. G.	16.2
"	"	"	"	Regent.....	28	32	115	9.3	63	3	Bl. V g.	16.6
"	"	"	"	Rival.....	27	36	115	9.3	62	3	V g.	15.9

No significant yield difference between varieties.

MISS ETHEL ELIZABETH MITRUSKY, LESTOCK												
3C	9	3	B	Marquis.....	38	40	118	10	64	3	V g.	14.4
"	"	"	"	Thatcher.....	39	39	116	10	64	3	V g.	16.0
"	"	"	"	Apex.....	33	38	117	9.7	64	3	V g. B p.	15.4
"	"	"	"	Renown.....	35	40	117	9.3	64	3	V g.	16.2
"	"	"	"	Regent.....	33	41	117	10	64	3	V g.	16.3
"	"	"	"	Rival.....	33	41	116	10	63.5	3	V g.	16.1

No significant yield difference between varieties.

RICHARD JOHN MacLENNAN, EARL GREY												
2B	9	4	B	Marquis.....	18	28	98	9	62	1	S g.	15.5
"	"	"	"	Thatcher.....	20	27	96	9	61	1	Sh. G.	16.2
"	"	"	"	Apex.....	18	27	96	9	61.5	1	S g.	15.7
"	"	"	"	Renown.....	14	27	96	9	62	1	S g.	16.9
"	"	"	"	Regent.....	16	27	95	9	61	1	S g.	16.9
"	"	"	"	Rival.....	17	27	98	9	62	1	S g.	16.0

Necessary difference—1.8 bushels.

WILLIAM JAMES LOCK, CYMRIC												
2B	9	5	B	Marquis.....	33	29	85	10	62	2	Bl.	14.6
"	"	"	"	Thatcher.....	40	25	83	10	61	3	B bl.	15.6
"	"	"	"	Apex.....	36	27	83	9	61	3	B bl. B p.	15.1
"	"	"	"	Renown.....	33	27	83	10	62	3	B bl.	16.0
"	"	"	"	Regent.....	34	26	83	9.7	61	3	B bl. S g.	16.0
"	"	"	"	Rival.....	33	30	84	9.3	62	2	Bl.	15.8

No significant yield difference between varieties.

GLEN EDWIN TINGEY, VENN												
2B	9	6	B	Marquis.....	14	....	119	9	64	1 Hd.	....	13.1
"	"	"	"	Thatcher.....	20	....	119	9	64	1 Hd.	....	14.6
"	"	"	"	Apex.....	14	....	119	9	63	1	B p.	14.7
"	"	"	"	Renown.....	11	....	119	9	64	1 Hd.	....	15.5
"	"	"	"	Regent.....	12	....	119	9	64	1 Hd.	....	15.8
"	"	"	"	Rival.....	13	....	119	9	63	1	S b p.	15.1

Necessary difference—3.0 bushels.

Wheat Pool District 9—Continued

Cereal variety zone	Dist.	Sub-dist	Test designation	Varieties	Yield bus. per acre	Plant height in inches	Days seed-ing to ripe	Straw strength	Pounds per measured bushel	Commer-cial grades	Grading remarks	Protein content in per-centage
W. JOE BUITENHUIS, RAYMORE												
2B	9	7	B	Marquis.....	19	31	105	9.7	65	1 Hd.	....	14.7
"	"	"	"	Thatcher.....	22	28	104	10	64	1	S b p.	15.6
"	"	"	"	Apex.....	19	29	104	9.7	64	1	S b p.	15.3
"	"	"	"	Renown.....	17	28	104	10	64	1 Hd.	....	15.9
"	"	"	"	Regent.....	17	29	103	9	63	1	S g.	15.8
"	"	"	"	Rival.....	17	28	103	10	63	1	S bl.	15.0

No significant yield difference between varieties.

BRICE JOHN BOLT, DAFOE

2B	9	8	B	Marquis.....	22	38	119	10	64.5	1 Hd.	....	14.5
"	"	"	"	Thatcher.....	24	36	117	10	63.5	1	S bl.	15.7
"	"	"	"	Apex.....	22	37	118	10	63.5	1	S b p.	15.1
"	"	"	"	Renown.....	19	37	115	8	64	1	S g.	15.7
"	"	"	"	Regent.....	18	37	115	9	63.5	1	S bl.	16.1
"	"	"	"	Rival.....	18	38	117	10	62	1	S bl.	14.8

Necessary difference—3.2 bushels.

AUSTIN ANDREW DRYDEN, TUFFNELL

3C	9	9	B	Marquis.....	19	....	....	....	64	1 Hd.	....	14.8
"	"	"	"	Thatcher.....	23	....	....	....	63	1 Hd.	....	15.0
"	"	"	"	Apex.....	21	....	....	....	64	1 Hd.	....	15.0
"	"	"	"	Renown.....	19	....	....	....	64	1 Hd.	....	14.9
"	"	"	"	Regent.....	19	....	....	....	62.5	1 Hd.	....	15.6
"	"	"	"	Rival.....	24	....	....	....	62	1 Hd.	....	15.5

No significant yield difference between varieties.

SIGGI F. EYOLFSON, LESLIE

3C	9	10	B	Marquis.....	26	33	113	9	60	3	B bl. S g.	15.1
"	"	"	"	Thatcher.....	27	31	110	9.3	59	3	B bl.	15.1
"	"	"	"	Apex.....	19	31	112	9.7	60	3	B bl. S b p.	15.4
"	"	"	"	Renown.....	20	30	110	8.3	60	3	B bl. S g.	15.4
"	"	"	"	Regent.....	22	33	111	9	59	3	B bl.	15.6
"	"	"	"	Rival.....	19	35	114	9	59	3	B bl. S b p	14.8

Necessary difference—3.4 bushels.

Tests Discarded on Account of Severe Damage by Drought, Pests, Hail or Other Causes.

9 2 B John Henry Lung, Southey.

WHEAT POOL DISTRICT 10

DONALD ALLAN DEW, RIVERHURST

1B	10	2	C	Marquis.....	23	28	96	9.7	63	1 Hd.	....	15.4
"	"	"	"	Thatcher.....	26	29	92	10	61.5	1	Sh.	16.8
"	"	"	"	Apex.....	22	29	95	9	63	1 Hd.	....	16.0
"	"	"	"	Renown.....	22	29	93	9.5	63	1	....	15.9
"	"	"	"	Regent.....	23	30	92	9.2	61	2	G.	16.1
"	"	"	"	Rival.....	24	28	95	10	62.5	1	....	15.3

No significant yield difference between varieties.

ARTHUR HENRY URWIN, BEECHY

1B	10	3	A	Marquis.....	52	35	106	7.7	64	1	S g.	14.3
"	"	"	"	Thatcher.....	49	33	103	7.3	63	1	S g.	14.8
"	"	"	"	Apex.....	45	34	104	7.3	64	1	S b p.	14.7
"	"	"	"	Renown.....	41	34	101	9	64.5	1	S g.	14.8
"	"	"	"	Regent.....	45	32	101	7.8	63	1	S g.	15.1
"	"	"	"	Rival.....	39	34	104	7.3	62.5	1	S g.	14.6

Necessary difference—3.8 bushels.

ALBERT HENRY MEADEN, BEECHY

1B	10	3	B	Marquis.....	18	25	81	10	63	3	V g.	14.9
"	"	"	"	Thatcher.....	19	24	81	10	63	1	S g.	15.4
"	"	"	"	Apex.....	15	24	81	10	64	1	S g.	15.6
"	"	"	"	Renown.....	18	25	81	10	63.5	1	S g.	16.1
"	"	"	"	Regent.....	20	24	81	10	63	2	V g.	16.1
"	"	"	"	Rival.....	15	25	81	10	63	1	S g.	15.4

Necessary difference—2.5 bushels.

PHILIP DUNCAN WENSLEY, WISETON

2B	10	4	A	Marquis.....	30	....	....	8.7	64	1 Hd.	....	13.1
"	"	"	"	Thatcher.....	41	....	....	8.7	64	1 Hd.	....	14.4
"	"	"	"	Apex.....	37	....	....	8.7	65	1 Hd.	....	14.0
"	"	"	"	Renown.....	30	....	....	9	65	1 Hd.	....	15.6
"	"	"	"	Regent.....	29	....	....	8.7	64	1 Hd.	....	15.7
"	"	"	"	Rival.....	27	....	....	8.7	63.5	1 Hd.	....	14.3

Necessary difference—4.9 bushels.

Wheat Pool District 10—Continued

Cereal variety zone	Dist.	Sub-dist.	Test designation	Varieties	Yield bus. per acre	Plant height in inches	Days seed-ing to ripe	Straw strength	Pounds per measured bushel	Commer-cial grades	Grading remarks	Protein content in per-centage
KENNETH K. HODGES, WISETON												
1B	10	4	B	Marquis.....	12	18	115	9.3	64	1 Hd.	....	13.9
..	Thatcher.....	13	18	111	9.3	63	1 Hd.	....	15.2
..	Apex.....	12	18	108	9.3	63.5	1 Hd.	....	14.5
..	Renown.....	14	18	110	8.3	64	1 Hd.	....	14.9
..	Regent.....	13	18	113	9.3	63	1 Hd.	....	15.0
..	Rival.....	12	18	113	9.7	63	1 Hd.	....	14.7

No significant yield difference between varieties.

KENNETH ROY GIBSON, BRATTON												
2B	10	5	B	Marquis.....	18	34	....	9	56.5	4	B. Sh. L w.	16.0
..	..	..	..	Thatcher.....	21	32	....	8	59	2	Sh. L w.	16.4
..	..	..	..	Apex.....	19	32	....	8.3	58	2	Sh. L w.	16.0
..	..	..	..	Renown.....	20	34	....	8	61.5	1	Bl. S g.	16.0
..	..	..	..	Regent.....	19	29	....	7.7	60	1	Sh. S g.	16.3
..	..	..	..	Rival.....	20	37	....	8.3	59	2	Sh. L w.	15.2

No significant yield difference between varieties.

OTIS JOHN VESTRE, STRONGFIELD												
2B	10	6	B	Marquis.....	9	....	110	8	61	1	S g.	13.8
..	..	..	..	Thatcher.....	12	....	111	8.3	62 5	1	S bl.	14.6
..	..	..	..	Apex.....	10	....	108	8	62	1	S bl.	14.8
..	..	..	..	Renown.....	8	....	109	8.6	63	1	S g.	15.3
..	..	..	..	Regent.....	9	....	108	8.3	62	1	S bl.	15.0
..	..	..	..	Rival.....	9	....	108	8.6	62	1	S bl. G	14.7

Necessary difference—2.1 bushels.

HARRIS RAYMOND REID, RENOWN												
2B	10	8	B	Marquis.....	41	37	105	10	64	1 Hd.	....	14.5
..	..	..	..	Thatcher.....	48	33	105	10	64	1 Hd.	....	14.9
..	..	..	..	Apex.....	43	33	105	10	64.5	1 Hd.	....	14.6
..	..	..	..	Renown.....	34	34	105	10	64.5	1 Hd.	....	15.4
..	..	..	..	Regent.....	41	34	105	10	64.5	1 Hd.	....	15.4
..	..	..	..	Rival.....	41	32	105	9.3	63.5	1 Hd.	....	14.9

Necessary difference—samples bulked.

RICHARD HARLEY STROUTS, HANLEY												
2B	10	9	B	Marquis.....	11	....	....	10	58.5	3	Sh. G.	15.6
..	..	..	..	Thatcher.....	13	....	....	10	63	1	S g.	16.3
..	..	..	..	Apex.....	12	....	....	10	63	1	S g.	16.0
..	..	..	..	Renown.....	9	....	....	10	63	1	S g.	16.0
..	..	..	..	Regent.....	13	....	....	10	63	2	G.	16.1
..	..	..	..	Rival.....	14	....	....	10	62.5	1	S g.	15.5

No significant yield difference between varieties.

LORNE HOWARD RYAN, DONAVON												
2B	10	10	B	Marquis.....	14	....	....	....	62	1 Hd.	....	11.6
..	..	..	..	Thatcher.....	15	....	....	....	63.5	1 Hd.	....	13.3
..	..	..	..	Apex.....	21	....	....	....	63.5	1 Hd.	....	12.6
..	..	..	..	Renown.....	16	....	....	....	63	1 Hd.	....	13.4
..	..	..	..	Regent.....	14	....	....	....	63	1 Hd.	....	13.9
..	..	..	..	Rival.....	13	....	....	....	63	1 Hd.	....	12.5

Necessary difference—samples bulked.

Tests Discarded on Account of Severe Damage by Drought, Pests, Hail, or Other Causes.

10	1	B	Vernon Arthur Wildfong, Craik.	10	6	C	Lincoln Steaborn, Hawarden.
10	2	B	Maurice F. Colwell, Tugaskie.	10	7	B	Gordon Edward Parnell, Davidson.

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DONALD ARTHUR McKAIG, KYLE												
1B	11	1	A	Marquis.....	28	35	101	9.7	62	1 Hd.	14.9
..	Thatcher.....	27	33	99	10	62.5	1 Hd.	15.2
..	..	..	..	Apex.....	25	34	100	10	63	1 Hd.	....	14.9
..	..	..	..	Renown.....	20	33	99	9.7	63	1 Hd.	....	15.6
..	..	..	..	Regent.....	23	32	99	10	62	1 Hd.	....	16.0
..	..	..	..	Rival.....	22	34	100	9.3	62	1 Hd.	....	14.9

Necessary difference 3.5 bushels.

JOSEPH DENNIS GLUM, TYNER												
1B	11	1	B	Marquis.....	25	....	....	....	65	1 Hd.	....	14.0
..	..	..	..	Thatcher.....	27	....	....	....	64	1 Hd.	....	14.3
..	..	..	..	Apex.....	29	....	....	....	65	1 Hd.	....	14.1
..	..	..	..	Renown.....	23	....	....	....	64	1 Hd.	....	14.8
..	..	..	..	Regent.....	24	....	....	....	64	1 Hd.	....	14.6
..	..	..	..	Rival.....	14	....	....	....	63	1 Hd.	....	14.2

Necessary difference—4.6 bushels.

Wheat Pool District 11—Continued

Cereal variety zone	Dist.	Sub-dist.	Test designation	Varieties	Yield bus. per acre	Plant height in inches	Days seed-ing to ripe	Straw strength	Pounds per measured bushel	Commer-cial grades	Grading remarks	Protein content in per-centage
EDWARD JOHN WARREN, WARTIME												
1B	11	2	A	Marquis.....	32	38	105	7	60.5	1	Sh.	14.0
"	"	"	"	Thatcher.....	41	36	106	8.7	63	1 Hd.	"	15.7
"	"	"	"	Apex.....	41	37	106	7.7	63.5	1 Hd.	"	15.4
"	"	"	"	Renown.....	37	36	106	8	64.5	1 Hd.	"	15.3
"	"	"	"	Regent.....	38	36	105	8.7	63.5	1 Hd.	"	15.4
"	"	"	"	Rival.....	33	38	105	8	62	1 Hd.	"	15.3
No significant yield difference between varieties.												
KENNETH DONALD MACKENZIE, WARTIME												
2B	11	2	B	Marquis.....	"	37	"	10	"	"	"	"
"	"	"	"	Thatcher.....	"	34	"	10	"	"	"	"
"	"	"	"	Apex.....	"	35	"	9.7	"	"	"	"
"	"	"	"	Renown.....	"	36	"	10	"	"	"	"
"	"	"	"	Regent.....	"	34	"	10	"	"	"	"
"	"	"	"	Rival.....	"	39	"	10	"	"	"	"
No samples received.												
J. RALPH SALKELD, ISHAM												
1B	11	3	A	Marquis.....	40	41	101	8	64	1 Hd.	"	14.6
"	"	"	"	Thatcher.....	45	38	101	9	63	1 Hd.	"	15.3
"	"	"	"	Apex.....	39	39	101	7	64	1 Hd.	"	15.2
"	"	"	"	Renown.....	43	40	101	9	64	1 Hd.	"	15.5
"	"	"	"	Regent.....	43	39	101	8.3	63.5	1 Hd.	"	15.6
"	"	"	"	Rival.....	32	41	101	9	62.5	1 Hd.	"	15.0
No significant yield difference between varieties.												
KENNETH JOHN BENNETT, EATONIA												
1B	11	4	A	Marquis.....	34	24	104	9	63.5	1 Hd.	"	15.3
"	"	"	"	Thatcher.....	36	24	100	9	62.5	1	S bl.	15.7
"	"	"	"	Apex.....	36	24	104	9	63	1 Hd.	"	15.5
"	"	"	"	Renown.....	29	24	104	9	64	1 Hd.	"	15.7
"	"	"	"	Regent.....	32	24	103	9	62.5	1	S g.	15.9
"	"	"	"	Rival.....	33	26	104	9	62	1	S g.	15.2
No significant yield difference between varieties.												
CHARLES ROBERT DOUGLAS, EYRE												
1B	11	4	B	Marquis.....	30	"	"	"	61.5	2	Bl.	12.2
"	"	"	"	Thatcher.....	33	"	"	"	58.5	3	B. Bl.	11.6
"	"	"	"	Apex.....	30	"	"	"	61	2	Bl.	12.1
"	"	"	"	Renown.....	25	"	"	"	62	2	Bl.	11.4
"	"	"	"	Regent.....	25	"	"	"	59	2	Bl.	10.9
"	"	"	"	Rival.....	23	"	"	"	58.5	2	Bl.	12.9
No significant yield difference between varieties.												
ELLIOT JAMES FINLEY, DEWAR LAKE												
1B	11	5	A	Marquis.....	36	34	93	"	64	1 Hd.	"	14.0
"	"	"	"	Thatcher.....	40	33	91	"	63.5	1 Hd.	"	14.9
"	"	"	"	Apex.....	34	35	91	"	64	1 Hd.	"	14.3
"	"	"	"	Renown.....	30	29	92	"	64	1 Hd.	"	15.1
"	"	"	"	Regent.....	34	32	91	"	63	1 Hd.	"	15.1
"	"	"	"	Rival.....	33	34	92	"	62.5	1 Hd.	"	14.2
Necessary difference—3.8 bushels.												
REG. YEOMANS, MARENGO												
1B	11	5	B	Marquis.....	16	20	108	9.7	58	2	Sh. S g.	17.3
"	"	"	"	Thatcher.....	22	22	108	10	59.5	3	Bl. B sh.	16.6
"	"	"	"	Apex.....	16	20	108	8.7	58	2	Bl. Sh.	17.4
"	"	"	"	Renown.....	17	20	108	9	59	2	Bl. Sh.	16.7
"	"	"	"	Regent.....	17	21	108	10	58	3	Bl. Sh. G.	16.6
"	"	"	"	Rival.....	19	24	108	10	58.5	2	Bl. Sh.	15.9
No significant yield difference between varieties.												
WILLIAM EVERETT OLIPHANT, D'ARCY												
1B	11	6	A	Marquis.....	"	36	108	10	"	"	"	"
"	"	"	"	Thatcher.....	"	33	108	10	"	"	"	"
"	"	"	"	Apex.....	"	34	108	10	"	"	"	"
"	"	"	"	Renown.....	"	31	108	10	"	"	"	"
"	"	"	"	Regent.....	"	33	108	10	"	"	"	"
"	"	"	"	Rival.....	"	36	108	10	"	"	"	"
No samples received.												
CHARLES MORRIS HICKSON, KINDERSLEY												
1B	11	6	B	Marquis.....	36	36	108	9	64	1 Hd.	"	14.6
"	"	"	"	Thatcher.....	41	35	109	9.3	64	1 Hd.	"	15.1
"	"	"	"	Apex.....	30	34	109	8	64	1 Hd.	"	15.0
"	"	"	"	Renown.....	30	35	108	9	65	1 Hd.	"	15.6
"	"	"	"	Regent.....	30	36	109	9	63	2	G.	15.6
"	"	"	"	Rival.....	28	38	108	9.7	63	1	S g.	15.1
Necessary difference 5.1 bushels.												

Wheat Pool District 11—Continued

Cereal variety zone	Dist.	Sub-dist.	Test designation	Varieties	Yield bus. per acre	Plant height in inches	Days seed-ing to ripe	Straw strength	Pounds per measured bushel	Commer-cial grades	Grading remarks	Protein content in per-centage
PHILIP ROSS JAVENS, ROSETOWN												
2B	11	7	A	Marquis.....	33	36	97	10	62.5	1 Hd.	....	15.4
"	"	"	"	Thatcher.....	42	36	94	10	62.5	1 Hd.	....	16.1
"	"	"	"	Apex.....	33	36	93	9	62.5	1 Hd.	....	15.3
"	"	"	"	Renown.....	36	36	96	10	64.5	1 Hd.	....	15.1
"	"	"	"	Regent.....	40	36	95	10	63.5	1 Hd.	....	15.4
"	"	"	"	Rival.....	37	39	98	9	61.5	1	Sh.	15.4

Necessary difference—2.6 bushels.

WILLIAM S. POWELL, ROSETOWN												
2B	11	7	B	Marquis.....	70	42	....	10	63	1	S bl.	13.7
"	"	"	"	Thatcher.....	67	41	....	10	62	2	Bl.	14.5
"	"	"	"	Apex.....	54	42	....	10	62	2	Bl. S b p.	14.0
"	"	"	"	Renown.....	53	42	....	10	63	2	Bl.	15.6
"	"	"	"	Regent.....	51	42	....	10	62	2	Bl.	15.3
"	"	"	"	Rival.....	43	44	....	10	61	2	Bl.	14.6

Necessary difference—5.8 bushels.

HENRY B. SAWATZKY, HERSCHEL												
1B	11	8	A	Marquis.....	53	40	....	9.7	64.5	1 Hd.	....	13.4
"	"	"	"	Thatcher.....	58	36	....	10	64	1 Hd.	....	14.6
"	"	"	"	Apex.....	50	38	....	8.7	64	1 Hd.	....	14.5
"	"	"	"	Renown.....	44	38	....	9.3	64.5	1 Hd.	....	15.2
"	"	"	"	Regent.....	49	38	....	9.3	64	1 Hd.	....	15.4
"	"	"	"	Rival.....	35	41	....	8.7	63	1 Hd.	....	14.7

Necessary difference—3.7 bushels.

MISS ROBERTA IRENE PHILLIPS, HERSCHEL												
1B	11	8	D	Marquis.....	24	29	106	8.3	63	1 Hd.	....	11.2
"	"	"	"	Thatcher.....	24	28	105	8.3	63	1	Bl. Sh.	12.1
"	"	"	"	Apex.....	22	29	108	8.3	63	1 Hd.	....	11.9
"	"	"	"	Renown.....	22	26	105	8	64.5	1 Hd.	....	12.8
"	"	"	"	Regent.....	17	25	106	7.3	63	1 Hd.	....	13.1
"	"	"	"	Rival.....	20	27	108	8	62	1	Bl. Sft. St.	12.0

Necessary difference—3.5 bushels. This test was grown on irrigated land.

GEORGE THOMAS SAMWAYS, MILLERDALE												
1B	11	9	A	Marquis.....	19	25	99	8	64	1 Hd.	....	14.6
"	"	"	"	Thatcher.....	19	26	97	8.7	64	1 Hd.	....	15.7
"	"	"	"	Apex.....	17	28	95	7.3	64.5	1 Hd.	....	15.2
"	"	"	"	Renown.....	18	28	100	8.3	65	1 Hd.	....	16.3
"	"	"	"	Regent.....	13	27	96	7.3	64	1 Hd.	....	16.7
"	"	"	"	Rival.....	17	30	96	9	64	1 Hd.	....	15.5

No significant yield difference between varieties.

DANIEL A. OLSON, PLENTY												
1B	11	9	B	Marquis.....	55	34	101	9	64	1 Hd.	....	13.7
"	"	"	"	Thatcher.....	63	33	100	8	63	1	Bl.	14.7
"	"	"	"	Apex.....	53	36	99	8	64	1 Hd.	....	14.3
"	"	"	"	Renown.....	51	35	101	9	64	1 Hd.	....	15.0
"	"	"	"	Regent.....	52	34	99	8	63	1	S g.	15.2
"	"	"	"	Rival.....	53	35	100	9	63	1 Hd.	....	14.4

Necessary difference—samples bulked.

LAWRENCE S. ZINGER, MAJOR												
1B	11	10	A	Marquis.....	34	39	103	8.7	63	1	S g.	14.9
"	"	"	"	Thatcher.....	38	33	102	8	63	1	S g.	15.2
"	"	"	"	Apex.....	25	31	103	6.3	63	1	S g. B p.	14.9
"	"	"	"	Renown.....	27	36	102	7.3	64	1	S g.	15.4
"	"	"	"	Regent.....	22	33	99	6.3	62.5	2	G.	15.9
"	"	"	"	Rival.....	33	37	102	8.7	63	1	S g.	14.7

Necessary difference—5.1 bushels.

MISS AGNES MARIE HOILAND, FUSILIER												
1B	11	10	B	Marquis.....	40	38	....	8.7	63	1 Hd.	....	14.4
"	"	"	"	Thatcher.....	40	36	....	8.3	63	1 Hd.	....	15.1
"	"	"	"	Apex.....	38	38	....	9	63	1 Hd.	....	14.8
"	"	"	"	Renown.....	31	37	....	8.3	64	1 Hd.	....	15.6
"	"	"	"	Regent.....	39	36	....	8.3	63	1 Hd.	....	15.5
"	"	"	"	Rival.....	33	40	....	8.7	62.5	1 Hd.	....	14.9

Necessary difference—3.7 bushels.

Test Discarded on Account of Severe Damage by Drought, Pests, Hail or Other Causes.

11 3 B Wray Johnson, Kindersley.

WHEAT POOL DISTRICT 12

Cereal variety zone	Dist.	Sub-dist.	Test designation	Varieties	Yield bus. per acre	Plant height in inches	Days seed-ing to ripe	Straw strength	Pounds per measured bushel	Commer-cial grades	Grading remarks	Protein content in per-centage
ROBERT NORRIS ANDERSON, BIGGAR												
2D	12	1	B	Marquis.....	14	38	104	7.7	60	1	Sh.	14.9
"	"	"	"	Thatcher.....	15	37	107	8.5	58	2	Bl. Sh.	15.9
"	"	"	"	Apex.....	16	36	103	7.2	59.5	2	Sh.	15.8
"	"	"	"	Renown.....	15	39	104	9.8	61.5	1	Sh.	15.3
"	"	"	"	Regent.....	15	37	104	9	61	1	Sh.	15.6
"	"	"	"	Rival.....	14	37	108	9.5	60	1	Sh.	15.1

No significant yield difference between varieties.

JAMES HOWARD BAILEY, BALJENNIE												
3E	12	2	B	Marquis.....	26	39	116	7.7	64	1 Hd.	....	14.2
"	"	"	"	Thatcher.....	30	37	116	9	64	1 Hd.	....	15.1
"	"	"	"	Apex.....	28	38	116	9	65	1 Hd.	....	14.6
"	"	"	"	Renown.....	28	36	116	10	65	1 Hd.	....	15.3
"	"	"	"	Regent.....	28	37	116	9.3	63.5	1 Hd.	....	15.8
"	"	"	"	Rival.....	21	39	116	10	63	1 Hd.	....	15.3

Necessary difference—4.1 bushels.

CHARLES VIZER, LANDIS												
2D	12	3	B	Marquis.....	41	38	112	8.9	63	2	G.	15.4
"	"	"	"	Thatcher.....	41	36	109	9.4	63	2	G.	15.4
"	"	"	"	Apex.....	39	38	111	8.4	64	1	S g.	15.4
"	"	"	"	Renown.....	33	36	107	9.4	64	1	S g.	16.0
"	"	"	"	Regent.....	43	35	110	9.3	63	2	G.	15.4
"	"	"	"	Rival.....	36	39	108	9.1	62	1	S g.	15.1

No significant yield difference between varieties.

WILFRED JOSEPH FOSTER, KERROBERT												
1B	12	4	B	Marquis.....	18	34	97	8.7	62.5	1 Hd.	....	15.3
"	"	"	"	Thatcher.....	22	32	97	7.7	60	1	Sh.	16.1
"	"	"	"	Apex.....	19	39	97	8.7	61	1	Sh.	15.8
"	"	"	"	Renown.....	20	35	97	8.7	64	1 Hd.	....	15.4
"	"	"	"	Regent.....	19	34	96	7.7	62	1	Bl. S g.	15.5
"	"	"	"	Rival.....	17	37	97	9.3	60.5	1	Sh.	15.1

No significant yield difference between varieties.

DONALD GEORGE SCOTT, SCOTT												
2D	12	5	B	Marquis.....	14	30	98	8.8	57.5	3	Sh. G.	17.1
"	"	"	"	Thatcher.....	15	30	98	9	57.5	3	B sh. L w.	17.1
"	"	"	"	Apex.....	15	29	97	7.8	58	2	Sh. G.	17.2
"	"	"	"	Renown.....	16	33	100	9.8	61.5	1	S g.	16.2
"	"	"	"	Regent.....	17	31	97	9.2	58	2	Sh. G.	16.7
"	"	"	"	Rival.....	14	31	102	8.8	58	2	Bl. G.	16.5

No significant yield difference between varieties.

WILFRED ARNOLD MAWBAY, SENLAC												
2D	12	6	B	Marquis.....	17	34	107	8.7	64	1 Hd.	....	15.4
"	"	"	"	Thatcher.....	23	33	106	9.7	63	1	S bl.	15.9
"	"	"	"	Apex.....	17	34	106	8.3	63.5	1 Hd.	....	15.6
"	"	"	"	Renown.....	17	34	106	9	64	1 Hd.	....	16.3
"	"	"	"	Regent.....	18	33	107	9	63	1	S g.	16.5
"	"	"	"	Rival.....	17	36	109	8.3	62	1	S bl.	15.7

Necessary difference—1.9 bushels.

WILLIS DAVID CAMMOCK, WINTER												
2D	12	7	B	Marquis.....	22	....	....	....	62	1	S g.	15.3
"	"	"	"	Thatcher.....	23	....	....	....	60	3	B bl. Sh.	15.8
"	"	"	"	Apex.....	17	....	....	....	59.5	2	Bl. Sh.	15.6
"	"	"	"	Renown.....	15	....	....	....	61	3	B bl. G.	16.5
"	"	"	"	Regent.....	22	....	....	....	60	3	B bl. G.	16.1
"	"	"	"	Rival.....	17	....	....	....	57.5	3	Bl. Sh.	14.9

No significant yield difference between varieties.

HENRY GRAHAM, MARSDEN												
2D	12	8	B	Marquis.....	29	....	....	8.7	63	1	S bl.	15.0
"	"	"	"	Thatcher.....	33	....	....	9.0	62	1	S bl.	15.5
"	"	"	"	Apex.....	26	....	....	8.3	62	1	S bp.	15.2
"	"	"	"	Renown.....	29	....	....	9.0	63.5	1	S bl.	15.5
"	"	"	"	Regent.....	26	....	....	9.0	62	1	Bl.	15.6
"	"	"	"	Rival.....	23	....	....	9.0	59	2	Bl. Sh.	14.8

Necessary difference—4.1 bushels.

GORDON HAASE, WILKIE												
2D	12	9	B	Marquis.....	25	27	107	8	64	1	S g.	14.3
"	"	"	"	Thatcher.....	26	27	105	8.2	63.5	1	S g.	14.4
"	"	"	"	Apex.....	21	28	104	8.5	63	1	S g.	14.6
"	"	"	"	Renown.....	21	27	105	8	64	1	S g.	14.9
"	"	"	"	Regent.....	23	28	104	8.3	63	2	G.	15.5
"	"	"	"	Rival.....	25	30	104	9.5	63	1	S g.	14.8

No significant yield difference between varieties.

Wheat Pool District 12—Continued

Cereal variety zone	Dist.	Sub-dist.	Test designation	Varieties	Yield bus. per acre	Plant height in inches	Days seed-ing to ripe	Straw strength	Pounds per measured bushel	Commer-cial grades	Grading remarks	Protein content in per-centage
GEORGE NELSON TRUSCOTT, BATTLEFORD												
3E	12	10	B	Marquis.....	45	46	.....	6	61.5	2	Bl.	15.2
"	"	"	"	Thatcher.....	54	39	.....	9.7	62	2	Bl.	15.7
"	"	"	"	Apex.....	47	41	.....	6	62	2	Bl.	14.9
"	"	"	"	Renown.....	43	41	.....	9	63.5	2	Bl.	16.0
"	"	"	"	Regent.....	43	38	.....	8.7	62	2	Bl. G.	16.2
"	"	"	"	Rival.....	43	45	.....	7.7	60.5	2	Bl.	15.1
Necessary difference—4.8 bushels.												

WHEAT POOL DISTRICT 13

WILLIAM BARON TIMMERMAN, JR., VISCOUNT												
2B	13	1	B	Marquis.....	33	39	105	9.3	64	1 Hd.	.....	12.9
"	"	"	"	Thatcher.....	38	34	104	8.7	63.5	1 Hd.	.....	14.3
"	"	"	"	Apex.....	37	36	104	6	64.5	1	S b p.	13.7
"	"	"	"	Renown.....	32	35	105	9	65	1 Hd.	.....	15.0
"	"	"	"	Regent.....	32	37	105	9.7	64.5	1 Hd.	.....	15.1
"	"	"	"	Rival.....	34	38	102	9	64.5	1 Hd.	.....	13.8
No significant yield difference between varieties.												

CHARLES BENJAMAN HELLYER, COLONSAY												
2B	13	2	B	Marquis.....	38	.....	117	6	64	1 Hd.	.....	13.3
"	"	"	"	Thatcher.....	40	.....	117	5.7	64	1 Hd.	.....	14.9
"	"	"	"	Apex.....	38	.....	117	3.3	64	1 Hd.	.....	14.7
"	"	"	"	Renown.....	33	.....	117	5.3	64	1 Hd.	.....	15.4
"	"	"	"	Regent.....	35	.....	117	5.3	63	1	Bl.	15.4
"	"	"	"	Rival.....	28	.....	117	8.3	62	1	Bl.	15.1
Necessary difference—4.5 bushels.												

HAROLD BURTON COWIE, DUNDURN												
2B	13	3	B	Marquis.....	27	.....	.....	.....	61	1	S bl. Sh.	15.0
"	"	"	"	Thatcher.....	31	.....	.....	.....	60.5	2	Bl.	15.4
"	"	"	"	Apex.....	28	.....	.....	.....	60.5	2	Bl.	15.8
"	"	"	"	Renown.....	23	.....	.....	.....	62	1	S bl.	16.1
"	"	"	"	Regent.....	25	.....	.....	.....	60.5	2	Bl. Sh.	16.5
"	"	"	"	Rival.....	25	.....	.....	.....	60.5	2	Bl. Sh.	15.3
Necessary difference—2.8 bushels.												

JOHN DENNIS MORGAN, DUNDURN												
2B	13	3	C	Marquis.....	25	.....	.....	9.8	62	1	Sh.	12.0
"	"	"	"	Thatcher.....	35	.....	.....	10	61.5	2	Bl.	13.5
"	"	"	"	Apex.....	24	.....	.....	9.8	62	1	S bl.	13.4
"	"	"	"	Renown.....	25	.....	.....	10	63	1	S bl.	13.7
"	"	"	"	Regent.....	20	.....	.....	10	62	1	S bl.	14.4
"	"	"	"	Rival.....	16	.....	.....	10	60	1	S bl.	14.2
Necessary difference—4.4 bushels.												

PETER WILLIAM KOWBLUK, ELSTOW												
2B	13	4	B	Marquis.....	23	29	107	8.3	63	1	S g.	13.9
"	"	"	"	Thatcher.....	24	26	106	9	63	1	S bl.	14.8
"	"	"	"	Apex.....	23	29	106	7	63	1	S bl. G.	14.7
"	"	"	"	Renown.....	19	24	106	7	63.5	1	S g.	15.1
"	"	"	"	Regent.....	19	25	106	8	63	1	S bl. G.	15.1
"	"	"	"	Rival.....	21	32	108	9	62	1	S bl.	14.9
No significant yield difference between varieties.												

MAURICE ALLAN MARTIN, DELISLE												
2B	13	5	B	Marquis.....	21	32	96	9.3	64	1 Hd.	.....	12.7
"	"	"	"	Thatcher.....	20	31	92	9.3	64	1 Hd.	.....	12.0
"	"	"	"	Apex.....	21	32	96	9.7	64.5	1 Hd.	.....	12.4
"	"	"	"	Renown.....	16	32	94	10	64	1 Hd.	.....	13.8
"	"	"	"	Regent.....	20	32	94	10	64	1 Hd.	.....	12.7
"	"	"	"	Rival.....	19	32	93	9.7	63	1 Hd.	.....	13.8
No significant yield difference between varieties.												

WINTON R. WRIGHT, VANSKOY												
2B	13	5	C	Marquis.....	26	40	111	8.3	59	2	Sh.	13.6
"	"	"	"	Thatcher.....	26	41	106	9	61.5	3	B bl.	15.1
"	"	"	"	Apex.....	21	41	105	7.3	62	2	Bl.	14.9
"	"	"	"	Renown.....	30	43	105	9	63	2	Bl.	16.1
"	"	"	"	Regent.....	21	42	106	7.7	60	3	B bl.	16.5
"	"	"	"	Rival.....	32	41	106	6	60	3	B bl.	15.0
No significant yield difference between varieties.												

ALBERT EDWARD FOREMAN, SONNINGDALE												
3E	13	6	B	Marquis.....	21	.....	.....	.....	63	1 Hd.	.....	15.9
"	"	"	"	Thatcher.....	28	.....	.....	.....	63	1 Hd.	.....	15.8
"	"	"	"	Apex.....	24	.....	.....	.....	63.5	1 Hd.	.....	15.4
"	"	"	"	Renown.....	15	.....	.....	.....	62.5	1 Hd.	.....	16.1
"	"	"	"	Regent.....	19	.....	.....	.....	62.5	1 Hd.	.....	16.2
"	"	"	"	Rival.....	22	.....	.....	.....	62.5	1 Hd.	.....	15.5
Necessary difference—4.8 bushels.												

Wheat Pool District 13—Continued

Cereal variety zone	Dist.	Sub-dist.	Test designation	Varieties	Yield bus. per acre	Plant height in inches	Days seed-ing to ripe	Straw strength	Pounds per measured bushel	Commer-cial grades	Grading remarks	Protein content in per-centage
ERNEST SKELTON, ABERDEEN												
2B	13	7	B	Marquis.....	29	34	115	8.7	63.5	1 Hd.	....	14.6
"	"	"	"	Thatcher.....	36	34	113	8.3	63	1 Hd.	....	15.4
"	"	"	"	Apex.....	31	34	113	8	64	1 Hd.	....	14.4
"	"	"	"	Renown.....	29	34	113	9.7	64	1 Hd.	....	15.3
"	"	"	"	Regent.....	29	34	112	8.3	63	1 Hd.	....	15.5
"	"	"	"	Rival.....	31	37	115	10	63	1 Hd.	....	15.2

No significant yield difference between varieties.

JOSEPH KIRZINGER, TOTZKE												
2B	13	8	B	Marquis.....	28	38	117	9	64	1 Hd.	....	14.1
"	"	"	"	Thatcher.....	29	36	117	8.3	64	1 Hd.	....	15.2
"	"	"	"	Apex.....	26	37	118	8.3	64	1 Hd.	....	14.6
"	"	"	"	Renown.....	21	34	118	8	65	1 Hd.	....	15.6
"	"	"	"	Regent.....	23	35	118	9	64.5	1 Hd.	....	15.8
"	"	"	"	Rival.....	23	38	118	8.7	64	1 Hd.	....	15.2

Necessary difference—3.5 bushels.

DICK J. KINDRACHUK, ALVENA												
3E	13	9	B	Marquis.....	....	....	....	....	54.5	5	P. Sh.	13.7
"	"	"	"	Thatcher.....	....	....	....	....	52.5	6	B sh.	15.1
"	"	"	"	Apex.....	....	....	....	....	56	4	Sh.	14.5
"	"	"	"	Renown.....	....	....	....	....	52	6	P. Sh.	15.5
"	"	"	"	Regent.....	....	....	....	....	58	4	P. Sh. G.	14.4
"	"	"	"	Rival.....	....	....	....	....	55	5	P. B sh.	14.4

Necessary difference—samples badly damaged—yields discarded.

Tests Discarded on Account of Severe Damage by Drought, Pests, Hail, or Other Causes.

13	4	C	Harvey M. Graham, R.R. No. 3, Saskatoon.	13	5	D	Clare Paur, Langham.
13	10	B	Leslie Larson, St. Benedict.				

WHEAT POOL DISTRICT 14

ROY GEORGE HENDRON, KELVINGTON												
3C	14	1	B	Marquis.....	54	48	109	8	65	1 Hd.	....	13.1
"	"	"	"	Thatcher.....	66	42	105	8.7	64	1 Hd.	....	13.7
"	"	"	"	Apex.....	55	44	104	8	65	1 Hd.	....	12.9
"	"	"	"	Renown.....	52	44	103	9.7	65	1 Hd.	....	14.4
"	"	"	"	Regent.....	50	41	100	8.7	64.5	1 Hd.	....	14.1
"	"	"	"	Rival.....	52	47	107	6.7	63	1 Hd.	....	13.4

Necessary difference—6.5 bushels.

BERT OTTO ANDERSON, HENDON												
3C	14	2	B	Marquis.....	49	43	106	8	64	1 Hd.	....	13.1
"	"	"	"	Thatcher.....	51	39	104	8	64.5	1 Hd.	....	13.6
"	"	"	"	Apex.....	45	41	104	7.7	65	1 Hd.	....	13.0
"	"	"	"	Renown.....	43	40	103	8.7	64	1 Hd.	....	14.1
"	"	"	"	Regent.....	42	37	97	8	65	1 Hd.	....	14.0
"	"	"	"	Rival.....	40	42	105	7.3	64	1 Hd.	....	13.5

Necessary difference—3.9 bushels.

GEORGE JAMES ARTHUR, LAC VERT												
3C	14	5	B	Marquis.....	45	54	122	8.7	63.5	1 Hd.	....	....
"	"	"	"	Thatcher.....	53	50	119	9	64	1 Hd.	....	....
"	"	"	"	Apex.....	35	48	120	9	63.5	1 Hd.	....	....
"	"	"	"	Renown.....	41	52	118	7.7	63.5	1 Hd.	....	....
"	"	"	"	Regent.....	41	52	120	7.7	63.5	1 Hd.	....	....
"	"	"	"	Rival.....	44	54	119	8.3	63	1 Hd.	....	....

No significant yield difference between varieties owing to unusual yield fluctuations within the test.

JOHN WEBER, McKAGUE												
4A	14	6	B	Marquis.....	51	41	111	8.7	58	2	Sh. G.	15.7
"	"	"	"	Thatcher.....	60	39	111	9.3	61	1	Sh. G.	15.9
"	"	"	"	Apex.....	42	38	111	8	55	4 Spec.	L w. B sh.	16.3
"	"	"	"	Renown.....	48	38	111	8.7	59	2	Sh. G.	15.8
"	"	"	"	Regent.....	54	38	111	8	59.5	2	Sh. G.	16.2
"	"	"	"	Rival.....	54	42	111	8.7	58	2	Sh.	15.1

Necessary difference—6.3 bushels.

DELBERT PATTERSON, TISDALE												
3D	14	8	B	Marquis.....	38	37	126	9	63	2	Bl.	10.8
"	"	"	"	Thatcher.....	36	34	124	9	61.5	3	B bl.	10.7
"	"	"	"	Apex.....	37	36	124	8.7	62	2	B bl.	10.9
"	"	"	"	Renown.....	36	36	124	9	63	2	Bl.	11.4
"	"	"	"	Regent.....	33	35	124	9	62	3	B bl.	10.8
"	"	"	"	Rival.....	35	36	125	8.3	61.5	3	B bl.	11.4

No significant yield difference between varieties.

Wheat Pool District 14—Continued

Cereal variety zone	Dist.	Sub-dist.	Test designation	Varieties	Yield bus. per acre	Plant height in inches	Days seed-ing to ripe	Straw strength	Pounds per measured bushel	Commer-cial grades	Grading remarks	Protein content in per-centage
JACK CUNNINGHAM YORK, LEACROSS												
3D	14	9	B	Marquis.....	53	42	116	8.3	64	2	Sft. St.	9.3
..	Thatcher.....	64	39	112	9.3	64.5	1	S. sft. St.	9.7
..	Apex.....	56	41	113	8.7	64.5	1	S sft. St.	9.7
..	Renown.....	52	40	110	9.7	64.5	1 Hd.	....	10.1
..	Regent.....	51	38	108	10	65	1	Sg.	9.8
..	Rival.....	42	45	116	7.7	64	2	Sft. St.	9.2

Necessary difference—8.2 bushels.

Tests Discarded on Account of Severe Damage by Drought, Pests, Hail or Other Causes.

14- 3	B	Leo M. McGrath, Lanigan.	14	7	B	William Elroy Wright, Star City
14 4	B	Tony M. Meschishnick, St. Gregor.	14	10	B	Albert J. Fyfe, Meteor.

WHEAT POOL DISTRICT 15

ROGER BERNARD, CRYSTAL SPRINGS

4A	15	1	B	Marquis.....	..	38	95	10	..	..	..	..
..	..	..	..	Thatcher.....	..	38	95	10	..	..	..	..
..	..	..	..	Apex.....	..	38	95	10	..	..	..	..
..	..	..	..	Renown.....	..	38	95	10	..	..	..	..
..	..	..	..	Regent.....	..	38	95	10	..	..	..	..
..	..	..	..	Rival.....	..	38	95	10	..	..	..	..

No samples received.

CHARLES LESLIE LINN, DOMREMY

3E	15	2	B	Marquis.....	19	32	102	8.7	60.5	1	Sh.	16.9
..	..	..	..	Thatcher.....	28	33	99	9.3	58.5	2	Sh. L w.	17.0
..	..	..	..	Apex.....	21	32	100	6.7	61	1	Sh.	17.0
..	..	..	..	Renown.....	22	33	100	9.3	61	1	Sh.	16.8
..	..	..	..	Regent.....	23	33	100	7.7	59.5	2	Sh. S g.	17.3
..	..	..	..	Rival.....	24	32	100	7	59	2	Sh. L w.	16.0

No significant yield difference between varieties.

WILLIAM FREDERICK ANDERSON, DUCK LAKE

3E	15	3	B	Marquis.....	27	41	105	9.3	65	1 Hd.	....	13.2
..	..	..	..	Thatcher.....	26	36	103	9	64.5	1 Hd.	....	13.5
..	..	..	..	Apex.....	26	35	105	8.2	65	1 Hd.	....	13.4
..	..	..	..	Renown.....	24	40	102	10	65.5	1 Hd.	....	14.3
..	..	..	..	Regent.....	29	36	102	9	65	1 Hd.	....	14.6
..	..	..	..	Rival.....	23	39	103	8.2	64.5	1 Hd.	....	13.8

No significant yield difference between varieties.

ELDON HAROLD KRAUSE, ROSTHERN

3E	15	4	B	Marquis.....	22	28	..	7.7	63	1 Hd.	....	14.2
..	..	..	..	Thatcher.....	25	27	..	8.7	62.5	1 Hd.	....	14.6
..	..	..	..	Apex.....	19	27	..	6.3	63	1 Hd.	....	14.9
..	..	..	..	Renown.....	17	27	..	7.7	64	1 Hd.	....	14.9
..	..	..	..	Regent.....	17	25	..	8.3	62	1 Hd.	....	15.2
..	..	..	..	Rival.....	17	28	..	9	63	1 Hd.	....	14.7

No significant yield difference between varieties.

LEONARD HENRY LA ROSE, WOOD HILL

4B	15	6	B	Marquis.....	41	41	114	9.7	64	1 Hd.	....	11.7
..	..	..	..	Thatcher.....	39	35	111	10	64	1 Hd.	....	13.2
..	..	..	..	Apex.....	41	38	112	9.7	64	1 Hd.	....	14.6
..	..	..	..	Renown.....	37	39	111	10	65	1 Hd.	....	13.3
..	..	..	..	Regent.....	41	39	106	10	63.5	1 Hd.	....	13.5
..	..	..	..	Rival.....	37	42	103	8	63.5	1 Hd.	....	12.8

No significant yield difference between varieties.

DOUGLAS KELL, CANWOOD

4B	15	7	B	Marquis.....	43	44	104	8	64	1 Hd.	....	14.6
..	..	..	..	Thatcher.....	50	42	102	10	64	1	S g.	13.8
..	..	..	..	Apex.....	43	43	103	9	64.5	1 Hd.	....	14.4
..	..	..	..	Renown.....	33	41	95	9	64.5	1 Hd.	....	14.5
..	..	..	..	Regent.....	38	42	95	10	64	1	S g.	14.7
..	..	..	..	Rival.....	55	45	103	8	63	1 Hd.	....	14.5

No significant yield difference between varieties owing to unusual yield fluctuations within the test.

THOMAS WILLIAM GALE, STURGEON VALLEY

3E	15	8	B	Marquis.....	13	38	113	10	63	1	S g.	13.9
..	..	..	..	Thatcher.....	15	38	113	10	63	1	S bl.	14.3
..	..	..	..	Apex.....	14	38	113	10	63	1	S g.	14.4
..	..	..	..	Renown.....	13	38	113	10	64	1	S g.	14.7
..	..	..	..	Regent.....	14	38	113	10	62.5	1	S g.	15.1
..	..	..	..	Rival.....	9	38	113	10	62.5	1	S bl.	13.7

Necessary difference—samples bulked.

Wheat Pool District 15—Continued

Cereal variety zone	Dist.	Sub-dist.	Test designation	Varieties	Yield bus. per acre	Plant height in inches	Days seedling to ripe	Straw strength	Pounds per measured bushel	Commercial grades	Grading remarks	Protein content in percentage
AXEL J. GOPLEN, PADDOCKWOOD												
4B	15	9	B	Marquis.....	25	28	101	8.3	64	1 Hd.	....	14.7
..	Thatcher.....	19	28	98	8.7	62.5	1	S bl.	15.4
..	Apex.....	20	31	98	8.7	62.5	1	S bl.	15.6
..	Renown.....	22	31	98	8	63	1 Hd.	....	15.7
..	Regent.....	22	29	98	8.7	62.5	1	S g.	15.6
..	Rival.....	24	32	96	8.3	61.5	1	S bl.	14.9

No significant yield difference between varieties.

Test Discarded on Account of Severe Damage by Drought, Pests, Hail or Other Causes.

15 10 B Thomas Hartwell Arthur Tubman, Brooksby.

WHEAT POOL DISTRICT 16

CRAWFORD BAKER, FIELDING

3E	16	1	B	Marquis.....	36	39	....	8	63	2	G.	14.3
..	..	..	..	Thatcher.....	34	34	....	8.3	62.5	2	Bl.	15.0
..	..	..	..	Apex.....	27	37	....	7.3	63	1	S g.	15.1
..	..	..	..	Renown.....	30	34	....	8	63.5	2	G.	15.3
..	..	..	..	Regent.....	31	36	....	8.3	62.5	2	Bl. S g.	15.5
..	..	..	..	Rival.....	30	37	....	7.7	61	2	B sh.	15.0

No significant yield difference between varieties.

BION RALPH LAYMAN, SPEERS

3E	16	2	B	Marquis.....	27	....	90	....	61.5	1	Sh.	15.0
..	..	..	..	Thatcher.....	30	....	90	....	62	1	S bl.	15.3
..	..	..	..	Apex.....	30	....	90	....	63	1 Hd.	....	14.6
..	..	..	..	Renown.....	26	....	90	....	64	1 Hd.	....	15.4
..	..	..	..	Regent.....	27	....	90	....	62	2	G.	15.5
..	..	..	..	Rival.....	27	....	90	....	62.5	1	S g.	15.0

No significant yield difference between varieties.

KENNETH LEE ROY WILLER, R.R. No. 1, NORTH BATTLEFORD

3E	16	3	B	Marquis.....	12	26	....	8	61.5	1	Sh.	14.6
..	..	..	..	Thatcher.....	16	33	....	9.3	61	1	Sh.	15.4
..	..	..	..	Apex.....	11	29	....	9	63	1 Hd.	....	15.2
..	..	..	..	Renown.....	9	28	....	9.3	63	1 Hd.	....	15.2
..	..	..	..	Regent.....	10	27	....	7.7	61	1	Sh.	15.7
..	..	..	..	Rival.....	12	31	....	7.7	61	1	Sh.	15.2

No significant yield difference between varieties owing to unusual yield fluctuations within the test.

GEORGES AIME JULLION, ST. HIPPOLYTE

3E	16	4	B	Marquis.....	32	33	....	10	65	1 Hd.	....	13.6
..	..	..	..	Thatcher.....	33	32	....	9.7	64	1 Hd.	....	13.7
..	..	..	..	Apex.....	30	33	....	10	64	1 Hd.	....	13.7
..	..	..	..	Renown.....	24	33	....	10	65	1 Hd.	....	13.9
..	..	..	..	Regent.....	27	31	....	10	64	1	S g.	14.5
..	..	..	..	Rival.....	31	35	....	9.3	64	1 Hd.	....	13.6

No significant yield difference between varieties.

JOHN ANGUS CURRIE, BRESAYLOR

3E	16	5	B	Marquis.....	....	24	99	10	62	2	Bl.	15.6
..	..	..	..	Thatcher.....	....	23	98	9	60	3	B bl.	16.1
..	..	..	..	Apex.....	....	28	98	10	61.5	2	Bl.	15.1
..	..	..	..	Renown.....	....	24	99	10	62.5	2	Bl.	15.4
..	..	..	..	Regent.....	....	25	98	10	60	3	B bl. Sh.	15.4
..	..	..	..	Rival.....	....	27	100	10	60	3	B bl. Sh.	14.3

Necessary difference—yields discarded—badly damaged.

MISS NOLA RICHARDS, LASHBURN

3E	16	6	B	Marquis.....	41	41	....	7.7	61	3	Sh. G.	14.5
..	..	..	..	Thatcher.....	46	39	....	9	61	3	Bl. G.	15.2
..	..	..	..	Apex.....	37	37	....	8	61	3	Sh. G.	15.0
..	..	..	..	Renown.....	37	39	....	8.7	62.5	2	Sh. G.	15.5
..	..	..	..	Regent.....	37	36	....	8	61	3	Sh. V g.	15.8
..	..	..	..	Rival.....	39	41	....	8	59	3	Sh. G.	14.4

Necessary difference—3.8 bushels.

ROBERT ALBERT TOERS, LIVELONG

3E	16	8	B	Marquis.....	29	29	104	10	64	1 Hd.	....	15.2
..	..	..	..	Thatcher.....	31	28	104	10	64	1 Hd.	....	15.2
..	..	..	..	Apex.....	28	29	100	9	65	1 Hd.	....	14.8
..	..	..	..	Renown.....	26	31	100	10	65	1 Hd.	....	15.4
..	..	..	..	Regent.....	24	27	100	9	64	1 Hd.	....	15.9
..	..	..	..	Rival.....	29	29	104	10	64	1 Hd.	....	14.4

No significant yield difference between varieties.

Wheat Pool District 16—Continued

Cereal variety zone	Dist.	Sub-dist.	Test designation	Varieties	Yield bus. per acre	Plant height in inches	Days seed-ing to ripe	Straw strength	Pounds per measured bushel	Commer-cial grades	Grading remarks	Protein content in per-centage
DONALD EDWARD TRUEMNER, MIDNIGHT LAKE												
4B	16	9	B	Marquis.....	27	24	108	9.7	64	1 Hd.	....	15.6
..	Thatcher....	31	20	104	10	63	1 Hd.	....	16.6
..	Apex.....	29	24	107	8.3	63	1 Hd.	....	15.7
..	Renown.....	21	22	104	9	64	1 Hd.	....	16.3
..	Regent.....	32	24	105	8.7	63	1	G.	15.8
..	Rival.....	30	23	110	9.3	62.5	1	S g.	14.6

Necessary difference—3.6 bushels.

GEORGES FRANCON, LAVENTURE												
4B	16	10	B	Marquis.....	14	29	112	8.3	64.5	1 Hd.	....	15.2
..	..	..	..	Thatcher....	18	26	109	9	64	1 Hd.	....	16.0
..	..	..	..	Apex.....	15	27	109	9	65	1 Hd.	....	15.0
..	..	..	..	Renown.....	15	26	108	10	65	1 Hd.	....	15.2
..	..	..	..	Regent.....	12	28	109	9.7	64	1 Hd.	....	15.7
..	..	..	..	Rival.....	15	30	111	8.3	63	1 Hd.	....	15.2

No significant yield difference between varieties.

Tests Discarded on Account of Severe Damage by Drought, Pests, Hail, or Other Causes.

16 7 B Elmo Preece, Bolney.

Individual Summarized Results of All Tests—DURUM WHEAT

Six tests with durumms were located in the central part of the province, in an area reaching from Liberty in the south to Renown in the north. Two durum varieties were used, namely, Pelissier and Mindum, the third variety being the common wheat, Thatcher. A six replicate randomized block plan was used for each test. Unfortunately a severe hail storm caused considerable damage in this region and only one test reached maturity and was harvested. The results of this test and the names of the other co-operators who conducted the tests which were severely damaged by hail appear below.

TABLE No. 21

Cereal variety zone	Dist.	Sub-dist.	Test designation	Varieties	Yield bus. per acre	Plant height in inches	Days seed-ing to ripe	Straw strength	Pounds per measured bushel	Commer-cial grades	Grading remarks	Protein content in per-centage
FREDERICK DOUGAL McDONALD, SIMPSON												
2B	10	8	E	Pelissier.....	40	35	113	10	65	1 C.W.	....	....
..	..	..	..	Mindum.....	33	39	111	7	65	1 C.W.	....	....
..	..	..	..	Thatcher.....	32	27	110	10	61.5	1	....	....

Necessary difference—5.9 bushels.

Tests Discarded on Account of Severe Damage by Drought, Hail, Pests, or Other Causes.

9 6 C P. A. Sundquist, Venn. 10 8 F Lloyd John Gebhard, Liberty.
10 8 C George and Allan Busse, Amazon. 10 8 G George Manford Stratton, Imperial.
10 8 D Edgar Reid, Renown.

OATS

NAMES AND DESCRIPTION OF VARIETIES USED IN TEST

Banner.—Originally introduced from North Europe. Banner has open panicles and white kernels, and is moderately susceptible to smut and to stem rust. Banner has a more slender and slightly longer kernel than Victory.

Vanguard.—From the cross of Hygira (a rust-resistant variety) with Banner made by the Dominion Rust Research Laboratory at Winnipeg. Vanguard is a white seeded open panicle variety highly resistant to stem rust but not resistant to smut. Under rust epidemic conditions in Eastern Saskatchewan Vanguard outyields all of the rust susceptible varieties.

Victory.—Introduced from Sweden many years ago. Victory has open panicles and white kernels, and is moderately susceptible to smut and to stem rust.

Gopher.—Selected from Sixty-Day Oats at the Minnesota Agricultural Experiment Station. Gopher has open panicles and white kernels, and is moderately susceptible to smut and susceptible to stem rust.

Anthony.—Produced by the Minnesota Agricultural Experiment Station from the cross Minota x White Tartar (a rust-resistant variety). Anthony is a white seeded, open panicle oat. Under rust conditions it yields more than Victory or Banner on account of its high degree of stem rust resistance.

Eagle.—A recent introduction from Europe. Eagle was first distributed from the Dominion Experimental Station, Lacombe, Alberta, in the spring of 1937. It is somewhat similar to Victory. It is not resistant to rust.

TABLE No. 22.—AVERAGE YIELD IN BUSHELS PER ACRE SUMMARIZED IN CEREAL VARIETY ZONES.

Zone	Number of Satisfactory Tests	Banner	Victory	Gopher	Vanguard	Eagle	Anthony	Necessary Difference in Bushels
2A.....	2	21.5	15.5	17.0	16.5	24.0	18.0	6.5
2D.....	6	57.8	52.0	55.5	57.1	60.8	51.0	4.5
3A.....	4	31.2	23.7	31.7	30.7	36.7	32.5	6.7
3B & 3C.....	11	44.4	42.0	30.3	35.8	42.4	36.1	3.0
3D.....	3	80.7	77.0	69.0	80.7	83.7	78.3	11.2
3E.....	9	43.3	37.3	37.1	37.5	42.7	39.1	4.0
4A & 4B.....	3	72.0	72.0	59.3	64.7	71.3	71.3	8.0



The keen interest of the Co-operators in these comparative tests is shown by the above photograph. The sign was supplied by A. J. Hruska, of Gerald, who conducted a Wheat Test.

YIELD

The figures in Table No. 22 show that with the exception of the combined Zones 3B and 3C and also Zone 3E where Banner excelled, Eagle outyielded the other varieties in all zones. In none of the zones, however, did Eagle exceed Banner by a difference which was significant, and taking the test as a whole, the difference in yield between these two varieties was only 1.3 bushels per acre. Victory was outyielded by nearly all varieties in the southeastern zones. It yielded comparatively well in the combined Zones 3B and 3C (in the east-centre) and appeared to advantage over a number of the other varieties, in the combined northern Zones 4A and 4B. Little difference appeared between the yielding ability of Vanguard and Anthony. In Zone 2D, however, Vanguard exceeded Anthony by a difference which is significant. Gopher appeared to most advantage in the southeast and a part of the northwest, Zones 2A, 3A, and 2D, where it exceeded some of the other varieties in yield. In the combined Zones 3B and 3C it yielded significantly lower than any of the other varieties, and in the northern zones it was the lowest yielder.

TABLE No. 23.—COMPARISON OF STRAW STRENGTH SUMMARIZED IN CEREAL VARIETY ZONES.

Cereal Variety Zone	Banner	Victory	Gopher	Vanguard	Eagle	Anthony
2A.....	9.9	9.9	9.2	9.9	9.9	9.9
2D.....	8.0	9.0	9.9	9.3	9.5	9.1
3A.....	9.5	9.5	9.7	9.0	9.6	9.5
3B & 3C.....	8.7	9.1	8.8	9.0	9.3	8.8
3D.....	8.3	9.3	9.7	7.9	9.4	6.4
3E.....	9.0	8.9	9.0	8.9	9.1	8.9
4A & 4B.....	8.8	8.8	8.3	8.8	9.0	8.4

STRAW STRENGTH

Straw strength was reported on the basis 0—10 as in the wheat tests, and the summarized results are shown in Table No. 23. Eagle excelled. In Zone 2A it tied with a number of the other varieties and in Zones 2D, 3A, and 3D it was slightly inferior to Gopher. In other zones, however, Eagle was the best. Gopher generally showed comparatively good straw strength, although in Zones 4A and 4B it was the weakest variety. Some variation occurred between Victory and Gopher, but on the whole Victory was somewhat inferior. Over the entire test Banner and Vanguard were almost equal although some variations were noticeable in the different zones. In most zones Anthony showed fairly good strength, but in Zone 3D it was decidedly inferior to the other varieties.

TABLE No. 24.—AVERAGE PLANT HEIGHT IN INCHES SUMMARIZED IN CEREAL VARIETY ZONES.

Cereal Variety Zone	Banner	Victory	Gopher	Vanguard	Eagle	Anthony
2A.....	17.3	16.7	17.7	17.0	17.7	17.0
2D.....	37.4	34.6	32.4	33.2	34.4	34.6
3A.....	28.8	29.2	26.2	26.8	27.2	28.6
3B & 3C.....	34.1	32.4	30.0	32.6	33.4	32.1
3D.....	36.3	33.7	34.0	34.7	36.0	35.3
3E.....	32.1	31.5	26.6	30.0	31.2	30.2
4A & 4B.....	37.7	36.3	31.0	32.3	35.7	36.0

HEIGHT OF PLANTS

The average height in inches of each variety is shown in Table No. 24. With the exception of Zone 2A where Gopher and Eagle exceeded Banner in height by slight differences, and in Zone 3A where Victory excelled, Banner was the tallest variety in all zones. Taking the test as a whole, Victory and Eagle were almost equal in height, being slightly more than 1 inch shorter than Banner. Eagle, however, appeared to exceed Victory in the eastern zones, while Victory was the taller of the two in the northwest. Although some variations occurred in the different zones, generally Anthony ranked fourth in plant height, and the average of all tests shows that this variety exceeded Vanguard by a difference of .8 inch. Gopher was

the shortest variety. In Zone 2A it tied with Eagle and was taller than the other varieties, and in Zone 3D it was slightly taller than Victory but in all other zones it was exceeded in height by the other varieties.

TABLE No. 25.—AVERAGE NUMBER OF DAYS FROM SOWING TO RIPENING SUMMARIZED IN CEREAL VARIETY ZONES.

Cereal Variety Zone	Banner	Victory	Gopher	Vanguard	Eagle	Anthony
2A.....	89.0	86.0	76.3	86.3	90.0	88.0
2D.....	88.0	90.0	83.0	85.0	90.7	89.5
3A.....	89.5	90.2	81.2	84.7	89.5	88.8
3B & 3C.....	95.4	95.1	89.5	93.3	96.0	95.4
3D.....	98.3	99.0	93.3	93.7	100.0	98.0
3E.....	93.7	94.0	89.7	92.0	93.3	93.7
4A & 4B.....	96.0	96.5	90.0	93.5	97.0	96.0

DAYS FROM SOWING TO RIPENING

Table No. 25 shows the average number of days required from sowing to ripening. Gopher was the earliest maturing variety in all zones, ripening earlier than the other varieties by differences which ranged from 2 to 13 days. Vanguard ranked second in "earliness" although in 2A Victory was slightly earlier. Victory and Anthony were slightly earlier maturing than Banner in some of the southern and eastern zones, but in the north Banner tied with Anthony and exceeded Victory in "earliness." In Zone 3A Eagle tied with Banner, and in Zone 3E it exceeded Banner, Victory, and Anthony. In all other zones, however, Eagle was the latest maturing variety.

TABLE No. 26.—BUSHEL WEIGHT IN POUNDS SUMMARIZED IN CEREAL VARIETY ZONES.

Cereal Variety Zone	Banner	Victory	Gopher	Vanguard	Eagle	Anthony
2A.....	35	39	37.2	36	37.2	38
2D.....	36.7	38.6	39.6	37.2	37.2	39
3A.....	37.8	38.7	37	37.1	38.4	39.5
3B & 3C.....	38.6	40.4	39.7	38.2	40.2	40.6
3D.....	39.3	42	39.6	38.0	40.6	41.1
3E.....	38.8	40.1	39.5	38.1	39.4	40.6
4A & 4B.....	39.5	40.3	41	39	40.5	41.5

BUSHEL WEIGHT

Table No. 26 shows the average bushel weight. All weights were taken on cleaned samples. Although it was outweighed by some of the other varieties in a few zones, generally Anthony excelled. Victory, however, also showed good weight and ranked second to Anthony. Generally over the whole test little difference appeared between Gopher and Eagle. In zones 2A and 2D Banner was outweighed by all varieties. It showed its best weight in Zone 3A where it exceeded both Gopher and Vanguard. In the other zones Banner outweighed Vanguard but was exceeded by the other varieties. Vanguard was low in bushel weight and taking the tests as a whole it was outweighed by Banner by a difference of .4 pounds.

TABLE No. 27.—SUMMARIZED RESULTS FOR CEREAL VARIETY ZONE 2A

	Banner	Victory	Gopher	Vanguard	Eagle	Anthony
Yield in bushels per acre.....	21.5	15.5	17.0	16.5	24.0	18.0
Days from sowing to ripening..	89.0	86.0	76.3	86.3	90.0	88.0
Height of plant in inches.....	17.3	16.7	17.7	17.0	17.7	17.0
Straw strength.....	9.9	9.9	9.2	9.9	9.9	9.9
Bushel weight in pounds.....	35.0	39.0	37.2	36.0	37.2	38.0
Commercial grades in percent- age.....	2 C.W. —	50.0	—	—	50.0	50.0
	3 C.W. 50.0	—	50.0	50.0	—	—
	1 Fd. 50.0	50.0	50.0	50.0	50.0	50.0

Necessary difference—6.5 bushels.

CEREAL VARIETY ZONE 2A

Summarized results for Zone 2A are shown in Table No. 27. **Yield.**—Eagle was the highest yielder but not significantly higher than Banner or Anthony. Eagle, however, outyielded Gopher, Vanguard and Victory by differences which are significant. No difference of a significant nature appears between the yields of the other varieties. **"Earliness."**—Gopher excelled, ripening earlier than the other varieties by the following differences: Victory, 9.7 days; Vanguard, 10 days; Anthony, 11.7 days; Banner, 12.7 days, and Eagle, 13.7 days. **Height.**—Little difference appeared between the heights of the different varieties. Gopher and Eagle, with average heights of 17.7 inches, exceeded the other varieties by the following differences: Banner, .4 inch; Vanguard and Anthony, .7 inch, and Victory, 1 inch. **Straw Strength.**—All varieties with the exception of Gopher tied, Gopher being slightly inferior. **Weight.**—Victory exceeded the other varieties by the following differences: Anthony, 1 lb.; Gopher and Eagle, 1.8 lbs.; Vanguard, 3 lbs., and Banner, 4 lbs. **Grades.**—Many samples contained a superabundance of green kernels. Little difference appeared in commercial grades, but Banner, Gopher, and Vanguard graded somewhat lower than the other varieties. **Smut.**—No loose or covered smut was reported. **Rust.**—With the exception of Gopher, all varieties showed some stem rust infection. Eagle appeared to be most severely infected. Victory showed slightly more infection than Banner, and Vanguard showed a slightly higher percentage of infection than Anthony. No crown rust was recorded in this zone. **Shattering.**—Vanguard appeared to suffer most severely by shattering. Gopher sustained less than half the loss suffered by Vanguard, but showed approximately twice the loss sustained by Banner. Only very slight losses were shown in the Victory, Eagle, and Anthony varieties.

General Results.—Only a limited number of tests in this zone reached maturity and the results are therefore very inconclusive. Generally, however, it would appear that Banner, Eagle, and Anthony have an advantage in yield which more than compensates for their inferiority in some characteristics when compared to the other varieties. Banner and Eagle both outyielded Anthony. The yield differences, however, are not of a significant nature and the slight advantage which Anthony enjoyed in earliness, combined with its rust-resistant qualities, to some extent offset its lower yield.

TABLE No. 23.—SUMMARIZED RESULTS FOR CEREAL VARIETY ZONE 2D.

	Banner	Victory	Gopher	Vanguard	Eagle	Anthony
Yield in bushels per acre.....	57.8	52.0	55.5	57.1	60.8	51.0
Days from sowing to ripening.....	88.0	90.0	83.0	85.0	90.7	89.5
Height of plant in inches.....	37.4	34.6	32.4	33.2	34.4	34.6
Straw strength.....	8.0	9.0	9.9	9.3	9.5	9.1
Bushel weight in pounds.....	36.7	38.6	39.6	37.2	37.2	39.1
Commercial grades in percent-						
age.....						
2 C.W.	50.0	50.0	50.0	67.0	67.0	83.0
3 C.W.	33.0	50.0	50.0	33.0	33.0	17.0
2 Fd.	17.0	—	—	—	—	—

Necessary difference—4.5 bushels.

CEREAL VARIETY ZONE 2D

Summarized results for Zone 2D are shown in Table No. 28. **Yield.**—Eagle was the highest yielding variety in this zone. The differences between Eagle and both Banner and Vanguard were not significant, but Eagle outyielded the other varieties by significant differences. Banner outyielded Vanguard by only .7 bushel. Both of these varieties, however, were significantly higher yielders than Victory and Anthony. Gopher outyielded Victory by 3.5 bushels, a difference which is not significant. Gopher outyielded Anthony by a significant difference, but the difference between Victory and Anthony is not of a significant nature. **"Earliness."**—Gopher excelled, ripening earlier than the other varieties by the following differences: Vanguard, 2 days; Banner, 5 days; Anthony, 6.5 days; Victory, 7 days, and Eagle, 7.7 days. **Height.**—Banner was the tallest variety in the zone exceeding the other varieties by differences as follows: Victory and Anthony, 2.8 inches; Eagle, 3 inches; Vanguard, 4.2 inches, and Gopher, 5 inches. **Straw Strength.**—Gopher excelled, the other varieties ranking in the following order: Eagle, Vanguard, Anthony, Victory, and Banner. Banner was decidedly inferior

to the other varieties. **Weight.**—Gopher exceeded the other varieties by the following differences: Anthony, .5 lb.; Victory, 1 lb.; Vanguard and Eagle, 2.4 lbs., and Banner, 2.9 lbs. **Grades.**—In some samples a superabundance of green kernels caused a lowering of the commercial grades, and in one sample of Banner the very light weight of the variety resulted in its grading No. 2 Feed. Apart from this, however, the differences in grades were not of a marked nature, Anthony grading somewhat better than the other varieties. **Smut.**—A slight percentage of covered smut was in evidence in the Banner and Anthony varieties, while traces of loose smut appeared in Vanguard and Anthony. **Rust.**—No stem rust was reported but traces of crown rust appeared in Banner, Victory, Eagle and Anthony. Anthony, however, showed the heaviest infection, the percentage on this variety being twice the infection appearing on Eagle. Only slight traces of crown rust were in evidence on Banner and Victory. **Shattering.**—Slight losses were reported to all varieties.

General Results.—In the past this zone has not been subject to severe rust attacks, and the yield and general performance of Eagle appear worthy of attention. Its comparatively long maturity period, however, is a handicap. Of the other varieties, Banner, Gopher, and Vanguard, each has some characteristic which merits consideration when the choice of a variety is being made.

TABLE No. 29.—SUMMARIZED RESULTS FOR CEREAL VARIETY ZONE 3A.

	Banner	Victory	Gopher	Vanguard	Eagle	Anthony
Yield in bushels per acre.....	31.2	23.7	31.7	30.7	36.7	32.5
Days from sowing to ripening..	89.5	90.2	81.2	84.7	89.5	88.8
Height of plants in inches.....	28.8	29.2	26.2	26.8	27.2	28.6
Straw strength.....	9.5	9.5	9.7	9.0	9.6	9.5
Bushel weight in pounds.....	37.8	38.7	37.0	37.1	38.4	39.5
Commercial grades in percent—						
age..... 2 C.W.	60.0	40.0	40.0	60.0	40.0	40.0
3 C.W.	40.0	40.0	60.0	40.0	60.0	40.0
1 Fd.	—	20.0	—	—	—	20.0

Necessary difference—6.7 bushels.

CEREAL VARIETY ZONE 3A

Summarized results for Zone 3A are shown in Table No. 29. **Yield.**—In Zone 3A Eagle was again the highest yielder. It exceeded Victory by a significant difference, but failed to yield significantly higher than the other varieties. Victory, with an average yield of 23.7 bushels, yielded significantly lower than the other varieties. There were no significant differences between the yields of the other varieties. **“Earliness.”**—Gopher excelled, ripening earlier than the other varieties by the following differences: Vanguard, 3.5 days; Anthony, 7.6 days; Banner and Eagle, 8.3 days; and Victory, 9.0 days. **Height.**—Victory exceeded the other varieties by differences which were as follows: Banner, .4 inch; Anthony, .6 inch; Eagle, 2 inches; Vanguard, 2.4 inches; Gopher, 3 inches. **Straw Strength.**—Gopher excelled, but was closely followed by Eagle. Banner, Victory, and Anthony tied, all showing slight inferiority to Eagle. Vanguard was inferior to all varieties, but its inferiority was not of a marked nature. **Bushel Weight.**—Anthony excelled, outweighing the other varieties by the following differences: Victory, .8 lb.; Eagle, 1.1 lbs.; Banner, 1.7 lbs.; Vanguard, 2.4 lbs., and Gopher, 2.5 lbs. **Grades.**—A number of samples of all varieties contained some green or weathered kernels. Banner and Vanguard tied in commercial grades, grading somewhat better than the other varieties. Gopher and Eagle were also equal and graded slightly better than Victory and Anthony. **Smut.**—No covered smut was reported but a few loose smutted heads appeared in the Banner and Victory varieties. **Rust.**—Light stem and crown rust infection appeared on all varieties. Victory and Eagle showed most stem rust infection, while Anthony appeared to show the heaviest infection of crown rust. **Shattering.**—The loss by shattering to Victory, Gopher, and Eagle, was almost equal but the loss sustained by these varieties was somewhat more than the loss suffered by the others.

General Results.—The general performance of Eagle, at least insofar as this test is concerned, suggests that this variety has considerable merit but its susceptibility to rust infection is a handicap in this zone where severe

losses have previously occurred. Of the other varieties, Banner, Gopher, and Anthony, appear to have made the best showing. The general performance of Anthony combined with its rust-resistant qualities would indicate that in 1940 it was somewhat superior to Banner and Gopher.

TABLE No. 30.—SUMMARIZED RESULTS FOR CEREAL VARIETY ZONES 3B AND 3C.

	Banner	Victory	Gopher	Vanguard	Eagle	Anthony
Yield in bushels per acre.....	44.4	42.0	30.3	35.8	42.4	36.1
Days from sowing to ripening..	95.4	95.1	89.8	93.3	96.0	95.4
Height of plant in inches.....	34.1	32.4	30.0	32.6	33.4	32.1
Straw strength.....	8.7	9.1	8.8	9.0	9.3	8.8
Bushel weight in pounds.....	38.6	40.4	39.7	38.2	40.2	40.6
Commercial grades in percent- age.....	1 C.W. —	—	—	10.0	—	10.0
	2 C.W. 54.0	54.0	54.0	60.0	54.0	36.0
	3 C.W. 28.0	36.0	46.0	20.0	37.0	54.0
	1 Fd. 18.0	10.0	—	10.0	9.0	—

Necessary difference—3.0 bushels.

CEREAL VARIETY ZONES 3B and 3C

(Combined Results)

The combined results for Zones 3B and 3C are shown in Table No. 30. **Yield.**—In these combined zones Banner was the highest yielder, but it failed to yield significantly higher than Eagle, or Victory. Banner, Eagle, and Victory, however, outyielded the other varieties by differences which are significant. No differences of a significant nature appear between the yields of Anthony and Vanguard. Gopher yielded significantly lower than all varieties. **"Earliness."**—Gopher excelled, ripening earlier than the other varieties by the following differences: Vanguard, 3.5 days; Eagle, 6.2 days; Banner and Anthony, 5.6 days; Victory, 5.3 days. **Straw Strength.**—Eagle showed the strongest straw. Victory and Vanguard were almost equal showing slight inferiority to Eagle. Gopher and Anthony tied and were only slightly superior to Banner. **Weight.**—Anthony excelled, outweighing the other varieties by the following differences: Victory, .2 lb.; Eagle, .4 lb.; Gopher, .9 lb.; Banner, 2 lbs, and Vanguard, 2.4 lbs. **Grades.**—A number of samples contained some green or weathered kernels in all varieties. Anthony, however, graded somewhat better than the other varieties. The difference in commercial grades placed on Anthony and the other varieties was not of a marked nature. **Smut.**—A small percentage of covered smut was reported in all varieties but no loose smut was in evidence. **Rust.**—No stem rust was recorded but slight traces of crown rust infection appeared on all varieties.

General Results.—The general performance of Banner, Victory, and Eagle appears to be reasonably satisfactory. In these zones, however, where rust infection has in the past caused heavy losses, the use of a variety with rust-resistant qualities is a distinct advantage. Of the two rust-resistant varieties, Vanguard and Anthony, the latter would appear to be preferable.

TABLE No. 31.—SUMMARIZED RESULTS FOR CEREAL VARIETY ZONE 3D.

	Banner	Victory	Gopher	Vanguard	Eagle	Anthony
Yield in bushels per acre.....	80.7	77.0	69.0	80.7	83.7	78.3
Days from sowing to ripening..	98.3	99.0	93.3	93.7	100.0	98.0
Height of plant in inches.....	36.3	33.7	34.0	34.7	36.0	35.3
Straw strength.....	8.3	9.3	9.7	7.9	9.4	6.4
Bushel weight in pounds.....	39.3	42.0	39.6	38.0	40.6	41.1
Commercial grades in percent- age.....	2 C.W. 25.0	100.0	75.0	75.0	75.0	100.0
	3 C.W. 75.0	—	25.0	25.0	25.0	—

Necessary difference—11.2 bushels.

CEREAL VARIETY ZONE 3D

Summarized results for Cereal Variety Zone 3D are shown in Table 31. **Yield.**—Eagle ranked first in yield but with the exception of Gopher, which yielded 14.7 bushels less, Eagle failed to yield significantly more than any of the other varieties. There were no significant yield differences between

Banner, Victory, Vanguard, and Anthony, but Banner and Vanguard each outyielded Gopher by a significant difference. "**Earliness.**"—Gopher was the earliest maturing variety but was closely followed by Vanguard, the difference between these two varieties being only .4 day. Gopher, however, ripened earlier than the other varieties by the following differences: Anthony, 4.7 days; Banner, 5 days; Victory, 5.7 days, and Eagle, 6.7 days. **Height.**—Banner excelled. The difference between this variety and Eagle, however, was only .3 inch, but Banner exceeded the other varieties by the following differences: Anthony, 1 inch; Vanguard, 1.6 inches; Gopher, 2.3 inches; Victory, 2.6 inches. **Straw Strength.**—Gopher was superior to the other varieties but the difference between Gopher and either Victory or Eagle was not of a marked nature. Banner ranked fourth but was closely followed by Vanguard. Anthony was decidedly inferior to the other varieties. **Bushel Weight.**—Victory excelled. Averaging 42 lbs. per bushel, it outweighed the other varieties by the following differences: Anthony, .9 lb.; Eagle, 1.4 lbs.; Gopher, 2.4 lbs.; Banner, 2.7 lbs., and Vanguard, 4.0 lbs. **Commercial Grades.**—Some green kernels were in evidence in nearly all samples. Victory and Anthony excelled in commercial grades. Gopher, Vanguard, and Eagle tied, grading somewhat lower than Victory and Anthony. Banner was inferior to the other varieties. **Smut, Rust.**—No covered smut, loose smut, stem rust or crown rust, was reported in this zone. **Shattering.**—Vanguard and Anthony sustained a very light loss by shattering but no loss was reported to other varieties.

General Results.—Eagle yielded well but exceeded only Gopher by a difference which is significant. It showed reasonably good height, was satisfactory in straw strength, and bushel weight, and graded fairly well. It was, however, later than any of the other varieties. While no rust appeared on any of the varieties in this zone during 1940, the area in the past has suffered severely from rust infection, and notwithstanding the relatively good performance of Eagle, its lack of rust-resistant qualities suggests the undesirability of its use in this zone. Gopher was earlier than any of the varieties but exceeded Vanguard in earliness by only .4 day. It was superior to the other varieties in straw strength and was reasonably satisfactory in bushel weight and commercial grades. Its yield however, was relatively low. It was outyielded by all varieties with the exception of Victory and Anthony, by differences which are significant, and its superiority in other characteristics fails to compensate for its lack in yield. Each of the other varieties, namely Banner, Victory, Vanguard, and Anthony, has some characteristic which may influence the grower in its favor. The results of this test, however, would suggest that Vanguard, despite its comparatively low bushel weight, is reasonably satisfactory in other characteristics, and in this zone its resistance to rust infection is a distinct advantage.

TABLE No. 32.—SUMMARIZED RESULTS FOR CEREAL VARIETY ZONE 3E.

	Banner	Victory	Gopher	Vanguard	Eagle	Anthony
Yield in bushels per acre.....	43.3	37.3	37.1	37.5	42.7	39.1
Days from sowing to ripening..	93.7	94.0	89.7	92.0	93.3	93.7
Height of plant in inches.....	32.1	31.5	26.6	30.0	31.2	30.2
Straw strength.....	9.0	8.9	9.0	8.9	9.1	8.9
Bushel weight in pounds.....	38.8	40.1	39.5	38.1	39.4	40.6
Commercial grades in percent-						
age.....						
1 C.W.	22.0	34.0	23.0	11.0	34.0	33.0
2 C.W.	67.0	44.0	44.0	56.0	33.0	44.0
3 C.W.	11.0	22.0	22.0	33.0	33.0	23.0
1 Fd.	—	—	11.0	—	—	—

Necessary difference—4.0 bushels.

CEREAL VARIETY ZONE 3E

Summarized results for Zone 3E are shown in Table No. 32. **Yield.**—Although Banner excelled in yield it exceeded Eagle by a difference of only .6 bushel. Banner, however, exceeded Anthony by a difference which is significant, and both Banner and Eagle outyielded the other varieties by significant differences. No difference of a significant nature appears between the yields of Anthony, Vanguard, Victory, and Gopher. "**Earliness.**"—Gopher excelled, maturing earlier than the other varieties by the following differences: Vanguard, 2.3 days; Eagle, 3.6 days; Banner and Anthony, 4 days, and Victory, 4.3 days. **Height.**—Banner was taller than the other

varieties by differences as follows: Eagle, .8 inch; Anthony, 1.9 inches; Vanguard, 2.1 inches, and Gopher, 5.5 inches. **Straw Strength.**—Eagle excelled, being slightly superior to Banner and Gopher, which tied. Victory, Vanguard, and Anthony were all equal and were slightly inferior to Banner and Gopher. **Weight.**—Anthony exceeded the other varieties by the following differences: Victory, .5 lb.; Gopher, 1.1 lbs.; Eagle, 1.2 lbs.; Banner, 1.8 lbs., and Vanguard, 2.5 lbs. **Grades.**—A few samples of all varieties contained some green or lightweight kernels, but Victory showed less defects than the other varieties, and this fact combined with comparatively good bushel weight, resulted in Victory being slightly superior in commercial grades to Eagle and Anthony, and decidedly superior to the other varieties. **Smut.**—Slight traces of covered smut were reported in the Eagle variety, and a very few loose smutted heads appeared in Banner, Victory, Vanguard and Anthony. **Rust.**—No stem or crown rust was reported in this zone. **Shattering.**—Gopher appeared to have sustained more loss than the other varieties but the loss was only of a very light nature.

General Results.—The yielding ability of Banner and Eagle combined with other characteristics which appear reasonably satisfactory, would suggest the worthiness of these varieties for use in this zone. Anthony also made a very good showing in yield, bushel weight, and commercial grades. The varieties mentioned, however, are later than both Vanguard and Gopher and in this zone the earliness of Gopher may be considered as compensating for its slight inferiority in yield.

TABLE No. 33.—SUMMARIZED RESULTS FOR CEREAL VARIETY ZONES 4A AND 4B.

	Banner	Victory	Gopher	Vanguard	Eagle	Anthony
Yield in bushels per acre.....	72.0	72.0	59.3	64.7	79.3	71.3
Days from sowing to ripening.....	96.0	96.5	90.0	93.5	97.0	96.0
Height of plant in inches.....	37.7	36.3	31.0	32.3	35.7	36.0
Straw strength.....	8.8	8.8	8.3	8.8	9.0	8.4
Bushel weight in pounds.....	39.5	40.3	41.0	39.0	40.5	41.5
Commercial grades in percentage.....						
1 C.W.	75.0	75.0	75.0	33.4	33.4	75.0
2 C.W.	—	—	25.0	33.3	33.3	—
3 C.W.	25.0	25.0	—	33.3	33.3	25.0

Necessary difference—8.0 bushels.

CEREAL VARIETY ZONES 4A and 4B

(Combined Results)

The combined results for Zones 4A and 4B are shown in Table 33. **Yield.**—Eagle was the highest yielder, but not significantly higher than Banner or Victory. It yielded, however, significantly more than the other varieties. No differences of a significant nature appeared between Banner, Victory, Anthony, or Vanguard. The yield of Gopher was significantly lower than all other varieties with the exception of Vanguard. **Earliness.**—Gopher ripened earlier than the other varieties by the following differences: Vanguard, 3.5 days; Banner and Anthony, 6 days; Victory, 6.5 days, and Eagle, 7 days. **Height.**—Banner excelled, exceeding the other varieties by the differences shown: Victory, 1.4 inches; Anthony, 1.7 inches; Eagle, 2 inches; Vanguard, 5.4 inches, and Gopher, 6.7 inches. **Straw Strength.**—Eagle was the strongest strawed variety in these zones. Banner, Victory, and Vanguard were equal, being slightly inferior to Eagle. Anthony was slightly superior to Gopher which showed the weakest straw. **Weight.**—Anthony excelled, outweighing the other varieties by the following differences: Gopher, .5 lb.; Eagle, 1 lb.; Victory, 1.2 lbs.; Banner, 2 lbs., and Vanguard, 2.5 lbs. **Grades.**—The sample of Gopher appeared free of any defects but the samples of the other varieties contained some green or weathered kernels. Gopher excelled in commercial grades but Banner, Victory, and Anthony graded only slightly lower. Vanguard and Eagle tied and graded lower than the other varieties. **Smut.**—Slight traces of covered smut and some loose smut were shown in all varieties. Gopher and Anthony appeared to show somewhat fewer loose smutted heads than the other varieties. **Rust.**—All varieties appeared to be infected with light stem and crown rust infection, the percentage of infection being very similar in all varieties.

General Results.—The western part of these combined zones (Zone 4B) has not in the past suffered severely from rust epidemics. While Eagle is the latest maturing variety, the difference in the maturity period of this variety and Banner, Victory, or Anthony is not of a marked nature; and the general performance of Eagle merits attention at least in so far as this western part is concerned. Over the whole area Banner, Victory, and Anthony appear to be reasonably satisfactory, each of these varieties having some characteristics which are worthy of consideration. Of the two varieties, Gopher and Vanguard, the earliness of Gopher and its superiority in bushel weight and commercial grades would appear to compensate for its inferiority in yielding ability.

VARIETIAL PERFORMANCE

(General summary of Varieties listed in alphabetical order).

Anthony.—Taking the test as a whole, Anthony yielded 43.8 bushels per acre. Anthony exceeded Gopher by 3.1 bushels. It was outyielded by Vanguard by a difference of only .1 bushel, but was exceeded in yielding ability by the other varieties by the following differences: Victory, .5 bushel; Banner, 4.9 bushels, and Eagle, 6.2 bushels. Only in three areas did Anthony outyield any of the other varieties by differences which are significant. These areas are Zone 3A where it significantly outyielded Victory, and the combined Zones 3B and 3C and 4A and 4B where Anthony exceeded Gopher by differences which are significant. Anthony ranked fourth in "earliness" in nearly all zones. Taking the test as a whole it was later than Vanguard and Gopher by differences of 2.9 days and 6.3 days respectively, but ripened earlier than the other varieties by slight differences. In nearly all zones Anthony exceeded Vanguard and Gopher in plant height. A general comparison over the entire test shows that Anthony exceeded the varieties mentioned by .8 inch and 2.5 inches respectively, but was shorter than the other varieties by the following differences: Victory, .3 inch; Eagle, .4 inch, and Banner, 1.6 inches. In the southern zones Anthony was reasonably satisfactory in straw strength. It was inferior to some of the varieties in most of the other zones but the difference was not of a marked nature. In Zone 3D, however, it was decidedly weaker in this characteristic than any of the other varieties. Although outweighed by one or two of the other varieties in a few zones, generally, over the whole test Anthony excelled in bushel weight, exceeding the other varieties by the following differences: Victory, .3 lb.; Gopher, .9 lb.; Eagle, 1 lb.; Banner, 2 lbs., and Vanguard, 2.4 lbs. The commercial grades placed on this variety are shown as follows: 1 C.W., 16%; 2 C.W., 50%; 3 C.W., 23%, and Feed, 11%. The percentage of covered smut was almost equal in all varieties and was only of a light nature. Anthony showed the largest number of loose smutted heads, the number being slightly more than in Victory, Banner, and Vanguard, and decidedly more than the other varieties. The small percentage of stem rust appearing on this variety was almost equal to the percentage shown on Vanguard and Gopher, slightly less than Banner, less than Victory, and decidedly less than Eagle. Anthony, however, showed the highest percentage of crown rust infection. The infection was somewhat more than that appearing on Eagle, Banner, and Victory, and decidedly more than on the other varieties. Anthony sustained less than half the loss by shattering suffered by Gopher; approximately equalled the loss to Vanguard, and Eagle; but showed somewhat more loss than Banner and Victory.

Banner.—An average of all tests shows that Banner produced 48.7 bushels per acre and was outyielded by Eagle by a difference of 1.3 bushels, but in none of the zones did Eagle exceed Banner by a difference which is significant. Taking the tests as a whole Banner outyielded the other varieties by the following differences: Victory, 4.4 bushels; Vanguard, 4.8 bushels; Anthony, 4.9 bushels, and Gopher, 8 bushels. In the following zones Banner exceeded the varieties named by differences which are significant: 2D—Victory, and Anthony; 3A—Victory; 3B and 3C—Anthony, Vanguard, and Gopher; 3D—Gopher; 3E—Anthony, Vanguard, Victory and Gopher; 4A and 4B—Gopher. Little difference appeared between the maturity periods of Banner, Victory and Anthony. In nearly all zones Banner ripened somewhat earlier than Eagle, and taking the test as a whole, Banner exceeded Eagle in earliness by nearly 1 day. Banner, however, was later than Van-

guard by differences which ranged from nearly 2 days to 4.8 days. Banner was also decidedly later than Gopher, in all zones, the average difference over the whole test being shown as 6.4 days. With the exception of Zones 2A and 3A where it was exceeded in height by some of the other varieties, Banner was the tallest variety in all zones. Taking the tests as a whole, Banner was taller than the other varieties by the following differences: Eagle, 1.2 inches; Victory, 1.3 inches; Anthony, 1.6 inches; Vanguard, 2.4 inches, and Gopher, 4.1 inches. In Zone 2D Banner was inferior in straw strength to all varieties. Generally, however, although some variations occurred in the different zones, Banner showed slightly stronger straw than Anthony, but was slightly inferior in this characteristic to the other varieties. In Zones 2A and 2D Vanguard exceeded Banner in bushel weight but in all other zones, Banner was somewhat superior in weight to Vanguard. In nearly all zones the other varieties outweighed Banner. Taking the tests as a whole, the differences were shown as follows: Eagle, 1 lb.; Gopher, 1.1 lbs.; Victory, 1.7 lbs., and Anthony, 2 lbs. In this comparison Banner outweighed Vanguard by .4 lb. The commercial grades placed on Banner were as follows: 1 C.W., 14%; 2 C.W., 37%; 3 C.W., 38%; Feed, 11%. The percentage of covered smut reported was practically the same in all varieties. The number of loose smutted heads in the Banner variety was equal to the number appearing in Vanguard, somewhat more than in Gopher and Eagle, but less than in Victory and Anthony. Only light stem rust infection was reported but Banner showed slightly more infection than Gopher, Vanguard and Anthony, but slightly less than Victory, and only approximately one-third of the infection appearing on Eagle. The percentage of crown rust appearing on Banner was slightly less than Victory; decidedly less than Eagle or Anthony; but slightly more than Vanguard or Gopher. Banner sustained less loss from shattering than any of the other varieties and decidedly less than the loss suffered by Gopher. Banner is officially recommended in all zones with the exception of 3B and 4A.

Eagle.—A general average of all tests shows that Eagle, averaging 50 bushels per acre, exceeded the other varieties in yielding ability by the following differences: Banner, 1.3 bushels; Victory, 5.7 bushels; Vanguard, 6.1 bushels; Anthony, 6.2 bushels, and Gopher, 9.3 bushels. In the following zones Eagle outyielded the varieties mentioned by differences which are significant: 2A—Gopher, Vanguard, and Victory; 2D—Gopher, Victory, and Anthony; 3A—Victory; 3B and 3C—Anthony, Vanguard, and Gopher; 3D—Gopher; 3E—Vanguard, Victory, and Gopher; 4A and 4B—Vanguard, Gopher, and Anthony. In two zones Eagle ripened earlier than some of the other varieties. These were, Zone 3A where Banner tied and Victory was approximately 1 day later, and Zone 3E, where Banner, Victory, and Anthony were slightly later. In all other zones, however, Eagle was later than the other varieties. A general comparison over the whole test shows that Eagle was exceeded in "earliness" by the following differences: Victory, .5 day; Banner, .7 day; Anthony, .8 day; Vanguard, 3.7 days, and Gopher, 7.1 days. Some variations occurred in comparative heights in the different zones. A general comparison, however, shows that Eagle was 1.2 inches shorter than Banner, but was taller than the other varieties by differences ranging from .1 inch to 2.9 inches. Taking the test as a whole, Eagle was slightly superior in straw strength to the other varieties. In the southern zones it showed slight inferiority to some of the other varieties, but in the central and northern zones it was superior in this characteristic to nearly all varieties. Some variations in comparative weights are shown in the different zones, but taking the tests as a whole Eagle ranked fourth in bushel weight. It was outweighed by Gopher by a slight difference of only .1 lb. and was exceeded by Victory and Anthony by .7 lbs. and 1 lb. respectively. It outweighed Banner by 1 lb. and Vanguard by 1.4 lbs. The commercial grades placed on the Eagle variety are as follows: 1 C.W., 11%; 2 C.W., 50%; 3 C.W., 31%; Feed, 8%. No outstanding difference appeared between the amount of covered smut reported in any of the varieties. The number of loose smutted heads appearing in the Eagle variety was slightly more than the number reported in Gopher, decidedly less than Victory, or Anthony; and somewhat less than the other varieties. The percentage of rust on the stems of the Eagle variety was decidedly more than that shown on the other varieties. While showing somewhat less crown rust infection than Anthony, Eagle was decidedly more infected than the other varieties.

Gopher.—Gopher was the lowest yielder. Taking the tests as a whole it was exceeded in yield by the other varieties by the following differences:

Anthony, 3.1 bushels; Vanguard, 3.2 bushels; Victory, 3.6 bushels; Banner, 8 bushels, and Eagle, 9.3 bushels. In Zone 2D Gopher exceeded Anthony by a significant difference and in Zone 3A it yielded significantly higher than Victory. In the combined Zones 3B and 3C, however, Gopher yielded significantly lower than the other varieties. In considering the yield of Gopher it should be kept in mind that shattering was far greater in this variety than in the others. Now Gopher is the earliest maturing variety and ten years of experiment station tests have not shown it to be low in yield or bad for shattering. Therefore its loss in yield in these tests may be attributed at least partly to shattering and most of this shattering may have been due to over ripeness before harvest. Gopher was the earliest maturing variety in all zones and an average of all tests shows that Gopher exceeded the other varieties in "earliness" by the following differences: Vanguard, 3.4 days; Anthony, 6.3 days; Banner, 6.4 days; Victory, 6.6 days, and Eagle, 7.1 days. Except in Zones 2A and 3D where it exceeded some varieties in height, Gopher was the shortest variety in all zones. Taking the tests as a whole, it was exceeded by the other varieties by the following differences: Vanguard, 1.7 inches; Anthony, 2.5 inches; Victory, 2.8 inches; Eagle, 2.9 inches, and Banner, 4.1 inches. In Zone 2A and the combined Zones 4A and 4B Gopher was somewhat inferior in straw strength to the other varieties. In Zones 2D, 3A, and 3D, however, it excelled in this characteristic. Taking the tests as a whole, Gopher ranked second to Eagle and showed slight superiority in strength of straw to the other varieties. Gopher showed its best weight in the combined Zones 4A and 4B where it exceeded all varieties. Generally, however, taking the tests as a whole, this variety was third in weight. It was outweighed by Victory and Anthony by .6 lb. and .9 lb. respectively, but outweighed Eagle by the slight difference of .1 lb., and exceeded the Banner and Vanguard varieties by 1.1 lbs. and 1.5 lbs. The commercial grades placed on the Gopher variety were as follows: 1 C.W., 14%; 2 C.W., 41%; 3 C.W., 36%; Feed, 9%. Little difference was shown between the different varieties in the percentage of covered smut recorded but Gopher appeared to have the least number of loose smutted heads. The percentage of stem rust infection appearing on this variety was equal to Vanguard; decidedly less than Eagle; and somewhat less than the other varieties. The percentage of crown rust was also approximately equal to the infection appearing on Vanguard; decidedly less than Eagle and Anthony; and somewhat less than the other varieties. Gopher sustained decidedly more loss by shattering than any of the other varieties. This as previously mentioned may have occurred as a result of its earliness for wherever Gopher was left standing until the other varieties were ripe it undoubtedly suffered some loss from shattering. In such cases Gopher's advantage of earliness resulted in an apparent disadvantage in yield but not necessarily a real disadvantage since farmers growing a large field of oats do not allow them to stand after they are ripe. Gopher is officially recommended in all zones with the exception of 1A and 1B.

Vanguard.—A general average of all tests shows that Vanguard ranked fourth in yielding ability but the average difference between this variety and Anthony was only .1 bushel. Vanguard outyielded Gopher by 3.2 bushels, but was exceeded in yield by the other varieties by the following differences: Victory, .4 bushel; Banner, 4.8 bushels, and Eagle, 6.1 bushels. In the following zones Vanguard yielded more than the varieties named by differences which are significant: 2D—Victory and Anthony; 3A—Victory; 3B and 3C—Gopher; 3D—Gopher. With the exception of Zone 2A where Victory was slightly earlier, Vanguard ranked second to Gopher in earliness in all zones. Taking the tests as a whole, it was 3.4 days later than Gopher, but exceeded the other varieties in "earliness" by the following differences: Anthony, 2.9 days; Banner, 3 days; Victory, 3.2 days, and Eagle, 3.7 days. While some variations occurred in the different zones, generally Vanguard was somewhat taller than Gopher but was generally exceeded in height by the other varieties, by the following differences: Anthony, .8 inch; Victory, 1.1 inches; Eagle, 1.2 inches, and Banner, 2.4 inches. Marked variations in the comparative straw strengths of the different varieties appeared in a number of zones. In Zone 3A Vanguard showed the weakest straw while in Zone 3D it showed superiority only to Anthony. Taking the tests as a whole, however, Vanguard was slightly inferior to Victory, Gopher, and Eagle, but was slightly superior in this characteristic to the other varieties. In the southeast and a part of the northwest, Vanguard outweighed one or two of the other varieties by small differences,

but generally Vanguard was outweighed by all varieties. Taking the tests as a whole, it weighed 37.8 lbs. and was exceeded by the following differences: Banner, .4 lb.; Eagle, 1.4 lbs.; Gopher, 1.5 lbs.; Victory, 2.1 lbs., and Anthony, 2.4 lbs. The commercial grades placed on the Vanguard variety are shown as follows: 1 C.W., 8%; 2 C.W., 50%; 3 C.W., 33%, and Feed, 9%. The percentage of covered smut reported was more or less equal in all varieties. Vanguard, however, showed more loose smutted heads than Gopher and Eagle; a similar number as Banner; but somewhat less than Victory and Anthony. The percentage of stem rust infection appearing on Vanguard was equal to Gopher, but decidedly less than Eagle, and somewhat less than the other varieties. The percentage of crown rust reported on Vanguard was also practically equal to Gopher, but decidedly less than the infection appearing on Eagle, and Anthony, and somewhat less than the other varieties. The loss by shattering to Vanguard was less than the loss sustained by Gopher, slightly more than Eagle, and Anthony, and somewhat more than the loss to Banner and Victory. The Saskatchewan Cereal Variety Committee recommend Vanguard for use in the following zones: 2A, 2B, 3A, 3B, 3C, 3D, and 4A.

Victory.—Victory showed an average yield of 44.3 bushels per acre. Taking the tests as a whole, it ranked third in yielding ability. It was exceeded in yield by Eagle and Banner by differences of 5.7 bushels and 4.4 bushels respectively, but outyielded the other varieties by the following differences: Vanguard, .4 bushel; Anthony, .5 bushel, and Gopher, 3.6 bushels. Only in the combined Zones 3B and 3C, and 4A and 4B, however, did Victory outyield any of the other varieties by differences which are significant. In Zones 3B and 3C it significantly outyielded Gopher, Vanguard, and Anthony. In Zones 4A and 4B Victory yielded significantly more than Gopher. In nearly all zones Victory was slightly earlier than Eagle. A general comparison over the whole test, however, shows that it was later than other varieties by the following differences: Banner, .2 day; Anthony, .3 day; Vanguard, 3.2 days, and Gopher, 6.6 days. In height Banner exceeded Victory in nearly all zones. In the eastern zones Eagle showed the most marked superiority over Victory. Taking the tests as a whole, however, Victory and Eagle were almost equal in plant height. Victory was exceeded in height by Banner by a difference of 1.3 inches, but was taller than the other varieties by the following differences: Anthony, .3 inch; Vanguard, 1.1 inches, and Gopher, 2.8 inches. While some variations occurred between the varieties in straw strength, Victory was generally slightly superior to Banner and Anthony, tied with Vanguard in most zones, and was slightly inferior to the other varieties. In bushel weight Victory ranked second to Anthony, and exceeded the other varieties. It was outweighed by Anthony by a difference of .3 lb.; but weighed more than the other varieties by the following differences: Gopher, .6 lb.; Eagle, .7 lb.; Banner, 1.7 lbs., and Vanguard, 2.1 lbs. The commercial grades placed on Victory were as follows: 1 C.W., 15%; 2 C.W., 49%; 3 C.W., 25%; Feed, 11%. The small percentage of covered smut reported was almost equal in all varieties but Victory showed only slightly fewer loose smutted heads than Anthony, somewhat more than Banner or Vanguard, and decidedly more than Gopher and Eagle. Stem rust infection on the Victory variety was decidedly less than the infection appearing on Eagle but slightly more than the percentage of infection on the other varieties. Victory showed less crown rust infection than Anthony, somewhat less than Eagle, but somewhat more than Banner, Gopher, and Vanguard. Loss by shattering to Victory was slightly more than the loss suffered by Banner but decidedly less than the loss sustained by Gopher, and somewhat less than the loss to the other varieties. Victory is officially recommended for use in all zones.

TABLE No. 34

Individual Summarized Results of All Tests—OATS

WHEAT POOL DISTRICT 1

Cereal variety zone	Dist.	Sub-dist.	Test designation	Varieties	Yield bus. per acre	Plant height in inches	Days seed-ing to ripe	Straw strength	Pounds per measured bushel	Commer-cial grades	Grading remarks
3A	1	1	A	WALTER HAROLD JOHNSON, GAINSBOROUGH							
"	"	"	"	Banner.....	34	86	3.7	....	....	....	....
"	"	"	"	Victory.....	36	86	9.7	....	....	....	....
"	"	"	"	Gopher.....	28	75	9.3	....	....	....	....
"	"	"	"	Vanguard.....	28	80	9.7	....	....	....	....
"	"	"	"	Eagle.....	31	86	10	....	....	....	....
"	"	"	"	Anthony.....	32	86	9.7	....	....	....	....
No samples received.											

2A	1	3	A	ALEXANDER JOHN TRUSCOTT, ALAMEDA							
"	"	"	"	Banner.....	20	16	107	9.7	33	1 Fd.	G.
"	"	"	"	Victory.....	12	15	99	9.7	37	1 Fd.	G.
"	"	"	"	Gopher.....	11	18	76	7.7	37	1 Fd.	G. Hl.
"	"	"	"	Vanguard.....	12	16	104	9.7	36	1 Fd.	V g.
"	"	"	"	Eagle.....	24	17	107	9.7	35	1 Fd.	V g.
"	"	"	"	Anthony.....	19	15	106	9.7	37.5	1 Fd.	G. W.
No significant yield difference between varieties owing to unusual yield fluctuations within the test.											

2A	1	8	A	DOUGLAS W. BARNET, HUNTOON							
"	"	"	"	Banner.....	12	79	....	....	*	E. 2 C.W.	....
"	"	"	"	Victory.....	12	79	....	....	38.5	3 C.W.	Hl.
"	"	"	"	Gopher.....	12	77	....	....	....	....	....
"	"	"	"	Vanguard.....	12	79	....	....	*	E. 3 C.W.	G.
"	"	"	"	Eagle.....	12	79	....	....	37	3 C.W.	G.
"	"	"	"	Anthony.....	12	79	....	....	*	E. 2 C.W.	....
Yields discarded—insufficient to weigh.											

3A	1	10	A	CLARENCE V. BORRESON, ANTLER							
"	"	"	"	Banner.....	22	27	87	9	36	2 C.W.	....
"	"	"	"	Victory.....	28	28	87	9	38	2 C.W.	S Hl.
"	"	"	"	Gopher.....	40	26	78	10	36	3 C.W.	....
"	"	"	"	Vanguard.....	32	25	79	9	38.5	2 C.W.	G.
"	"	"	"	Eagle.....	36	26	87	8.3	38.5	2 C.W.	....
"	"	"	"	Anthony.....	38	28	86	9.7	37.5	2 C.W.	....
Necessary difference—6.9 bushels.											

Tests Discarded on Account of Severe Damage by Drought, Pests, Hail, or Other Causes.

1 5 A Roger Carlton, Benson.

WHEAT POOL DISTRICT 6

2A	6	4	A	DONALD CLIFTON CAMPBELL, AVONLEA.							
"	"	"	"	Banner.....	48	....	....	....	31	2 Fd.	G. L w.
"	"	"	"	Victory.....	40	....	....	....	33.5	1 Fd.	G. W.
"	"	"	"	Gopher.....	47	....	....	....	33	1 Fd.	L w.
"	"	"	"	Vanguard.....	42	....	....	....	34	3 C.W.	G. L w.
"	"	"	"	Eagle.....	45	....	....	....	31.5	2 Fd.	G. L w.
"	"	"	"	Anthony.....	44	....	....	....	32.5	2 Fd.	L w.
Significant difference—samples bulked.											

2A	6	5	A	WILLIAM BARCLAY GREEN, BOHARM							
"	"	"	"	Banner.....	23	24	81	10	37	3 C.W.	G.
"	"	"	"	Victory.....	19	23	80	10	41	2 C.W.	....
"	"	"	"	Gopher.....	23	23	76	10	37.5	3 C.W.	G.
"	"	"	"	Vanguard.....	21	23	76	10	36	3 C.W.	V g.
"	"	"	"	Eagle.....	24	24	84	10	39.5	2 C.W.	S g.
"	"	"	"	Anthony.....	17	24	79	10	38.5	2 C.W.	S g.
No significant yield difference between varieties.											

3A	6	9	A	CHARLES LOW, JR., LEBRET							
"	"	"	"	Banner.....	....	....	84	....	36	3 C.W.	G.
"	"	"	"	Victory.....	....	....	84	....	33	2 Fd.	G. L w.
"	"	"	"	Gopher.....	23	....	84	....	38.5	3 C.W.	W.
"	"	"	"	Vanguard.....	18	....	84	....	35.5	3 C.W.	G.
"	"	"	"	Eagle.....	14	....	84	....	35	3 C.W.	G.
"	"	"	"	Anthony.....	20	....	84	....	38	3 C.W.	G. W.
Banner and Victory very green—yields discarded.											

Tests Discarded on Account of Severe Damage by Drought, Pests, Hail, or Other Causes.

6 2 A Donald A. Buchanan, Francis.

6 7 A Thomas Kelly, Regina.

E. Estimated.

* Insufficient to weigh.

WHEAT POOL DISTRICT 7

Cereal variety zone	Dist.	Sub-dist.	Test designation	Varieties	Yield bus. per acre	Plant height in inches	Days seed-ing to ripe	Straw strength	Pounds per measured bushel	Commer-cial grades	Grading remarks
WILLIAM DONALD FAULKNER, DOONSIDE											
3A	7	1	A	Banner.....	36	35	94	10	38.5	2 C.W.	....
"	"	"	"	Victory.....	12	34	98	10	41	1 C.W.	....
"	"	"	"	Gopher.....	22	31	86	10	36	2 C.W.	....
"	"	"	"	Vanguard.....	34	32	86	10	36.5	2 C.W.	G.
"	"	"	"	Eagle.....	32	33	94	10	39.5	2 C.W.	....
"	"	"	"	Anthony.....	29	35	94	10	40	2 C.W.	....
Necessary difference—12.1 bushels.											

KENNETH DANIEL McMILLAN, KENNEDY											
2A	7	3	A	Banner.....	19	....	....	10	38	2 C.W.	....
"	"	"	"	Victory.....	25	....	....	10	40	2 C.W.	....
"	"	"	"	Gopher.....	28	....	....	10	37.5	2 C.W.	....
"	"	"	"	Vanguard.....	35	....	....	10	36.5	2 C.W.	....
"	"	"	"	Eagle.....	27	....	....	10	38	2 C.W.	....
"	"	"	"	Anthony.....	25	....	....	10	38.5	2 C.W.	....
Necessary difference—6.3 bushels.											

NORMAN YATES, GRENFELL											
3A	7	7	A	Banner.....	26	23	84	9	37.5	3 C.W.	G. Hl.
"	"	"	"	Victory.....	....	22	84	8.7	39.5	3 C.W.	G.
"	"	"	"	Gopher.....	36	22	75	9	36	3 C.W.	G. W.
"	"	"	"	Vanguard.....	23	23	83	8.3	38	2 C.W.	....
"	"	"	"	Eagle.....	26	22	85	9.7	39	3 C.W.	G.
"	"	"	"	Anthony.....	28	23	81	8	39	1 Fd.	G. Hl.
Necessary difference (Victory badly damaged).											

EDWARD J. HANOWSKI, KILLALEY											
3A	7	10	A	Banner.....	41	25	102	10	41	2 C.W.	....
"	"	"	"	Victory.....	46	26	102	10	41.5	3 C.W.	Hl.
"	"	"	"	Gopher.....	29	24	88	10	36.5	3 C.W.	W.
"	"	"	"	Vanguard.....	34	26	96	8	39.5	2 C.W.	....
"	"	"	"	Eagle.....	53	24	101	10	41	3 C.W.	Hl.
"	"	"	"	Anthony.....	35	25	102	10	42	3 C.W.	Hl. W.
Necessary difference—13.5 bushels.											

Tests Discarded on Account of Severe Damage by Drought, Pests, Hail, or Other Causes.
7 9 A John Rex Illingworth, Atwater.

WHEAT POOL DISTRICT 8

JAMES FORBES McPHERSON, ROKEY											
3C	8	2	A	Banner.....	....	31	....	10	....	....	....
"	"	"	"	Victory.....	....	29	....	10	....	....	....
"	"	"	"	Gopher.....	....	27	....	10	....	....	....
"	"	"	"	Vanguard.....	....	27	....	10	....	....	....
"	"	"	"	Eagle.....	....	29	....	10	....	....	....
"	"	"	"	Anthony.....	....	28	....	10	....	....	....
Destroyed by gophers—no yields.											

ROBERT K. DODDS, YORKTON											
3C	8	4	A	Banner.....	50	....	92	9	38	3 C.W.	G. W.
"	"	"	"	Victory.....	40	....	90	10	38	3 C.W.	G. W.
"	"	"	"	Gopher.....	38	....	87	10	38.5	3 C.W.	W.
"	"	"	"	Vanguard.....	38	....	87	10	37.5	2 C.W.	Sl. W.
"	"	"	"	Eagle.....	42	....	90	10	39	3 C.W.	G. W.
"	"	"	"	Anthony.....	39	....	92	9.3	38	3 C.W.	G. W.
Necessary difference—6.5 bushels.											

IAIN COWAN MACLEAN, KAMSACK											
3C	8	5	A	Banner.....	52	32	....	10	43	2 C.W.	....
"	"	"	"	Victory.....	56	30	....	10	44.5	3 C.W.	....
"	"	"	"	Gopher.....	41	24	....	10	40	2 C.W.	....
"	"	"	"	Vanguard.....	36	27	....	10	40.5	2 C.W.	....
"	"	"	"	Eagle.....	52	32	....	10	42.5	2 C.W.	....
"	"	"	"	Anthony.....	41	30	....	10	43	2 C.W.	....
Necessary difference—8.2 bushels.											

MISS NELLIE KILLNAK, TADMORE											
3C	8	6	A	Banner.....	39	....	....	10	38	3 C.W.	G.
"	"	"	"	Victory.....	40	....	....	10	42.5	2 C.W.	G. S hl.
"	"	"	"	Gopher.....	32	....	....	10	40.5	2 C.W.	....
"	"	"	"	Vanguard.....	27	....	....	10	41.5	2 C.W.	S g.
"	"	"	"	Eagle.....	26	....	....	10	42.5	2 C.W.	S g.
"	"	"	"	Anthony.....	22	....	....	10	42.5	3 C.W.	G. S hl.
No significant yield difference between varieties owing to unusual yield fluctuations within the test.											

Cereal variety zone	Dist.	Sub-dist.	Test designation	Varieties	Yield bus. per acre	Plant height in inches	Days seed-ing to ripe	Straw strength	Pounds per measured bushel	Commer-cial grades	Grading remarks
JOHN SAWCHUK, SHEHO											
3C	8	7	B	Banner.....	31	33	86	8	34	1 Fd.	V g.
..	Victory.....	30	32	86	7.7	38.5	3 C.W.	G.
..	Gopher.....	9	31	86	8	39	3 C.W.	G.
..	Vanguard.....	21	36	86	8.3	36	3 C.W.	G.
..	Eagle.....	31	35	88	9.7	37	3 C.W.	G. S hl.
..	Anthony.....	18	32	87	8.3	37	3 C.W.	Hl. W.

Necessary difference—11.2 bushels.

FRED A. CZORNOBAY, JR., ENDEAVOUR											
4A	8	8	A	Banner.....	..	43	..	10	..	..	..
..	..	..	..	Victory.....	..	38	..	10	..	..	..
..	..	..	..	Gopher.....	..	37	..	10	..	..	..
..	..	..	..	Vanguard.....	..	37	..	10	..	..	..
..	..	..	..	Eagle.....	..	35	..	10	..	..	..
..	..	..	..	Anthony.....	..	41	..	10	..	..	..

No samples received.

PETER KOSTENUIK, ORMSIDE											
4A	8	9	C	Banner.....	102	38	101	9	40	1 C.W.	..
..	..	..	..	Victory.....	87	37	102	9	42	1 C.W.	..
..	..	..	..	Gopher.....	78	32	93	9	41.5	1 C.W.	..
..	..	..	..	Vanguard.....	81	34	98	9	39	2 C.W.	..
..	..	..	..	Eagle.....	100	37	103	9	41	2 C.W.	..
..	..	..	..	Anthony.....	97	37	101	9	42.5	1 C.W.	..

Necessary difference—12.1 bushels.

Tests Discarded on Account of Severe Damage by Drought, Pests, Hail, or Other Causes.
8 10 C William John Cochrane, Pelly.

WHEAT POOL DISTRICT 9

HENRY WERNER, CUPAR											
3C	9	2	A	Banner.....	35	35	90	10	40.5	2 C.W.	..
..	..	..	..	Victory.....	21	34	88	10	42.5	2 C.W.	..
..	..	..	..	Gopher.....	41	31	82	10	39	2 C.W.	..
..	..	..	..	Vanguard.....	42	41	90	10	39.5	2 C.W.	..
..	..	..	..	Eagle.....	37	38	90	10	41.5	2 C.W.	..
..	..	..	..	Anthony.....	30	33	89	10	42	2 C.W.	..

Necessary difference—5.2 bushels.

HARRY F. WODTKE, PUNNICHY											
3C	9	7	A	Banner.....	56	36	106	6	32	1 Fd.	V l w.
..	..	..	..	Victory.....	66	34	108	7	33	1 Fd.	L w.
..	..	..	..	Gopher.....	64	34	100	7	35.5	3 C.W.	L w.
..	..	..	..	Vanguard.....	68	33	102	7	32.5	1 Fd.	L w.
..	..	..	..	Eagle.....	70	35	109	7	33.5	1 Fd.	L w.
..	..	..	..	Anthony.....	61	38	106	6	34	3 C.W.	L w.

Necessary difference—7.9 bushels.

CALVIN C. KRAUSE, JANSEN											
3C	9	8	A	Banner.....	52	32	96	9	42	2 C.W.	..
..	..	..	..	Victory.....	47	30	96	9.3	41.5	2 C.W.	..
..	..	..	..	Gopher.....	21	27	90	7.3	42.5	2 C.W.	..
..	..	..	..	Vanguard.....	46	28	94	8.7	40.5	2 C.W.	..
..	..	..	..	Eagle.....	45	28	96	9.3	42.5	2 C.W.	S. Hl.
..	..	..	..	Anthony.....	52	27	96	9	43.5	2 C.W.	S. Hl.

Necessary difference—6.9 bushels.

HAROLD HORNFORD, ELFROS											
3C	9	10	A	Banner.....	30	..	86	..	39.5	3 C.W.	G.
..	..	..	..	Victory.....	27	..	86	..	41	3 C.W.	G.
..	..	..	..	Gopher.....	6	..	..	..	40	3 C.W.	G.
..	..	..	..	Vanguard.....	13	..	86	..	39	3 C.W.	G.
..	..	..	..	Eagle.....	11	..	87	..	40.5	3 C.W.	G.
..	..	..	..	Anthony.....	22	..	87	..	41.5	3 C.W.	G.

Necessary difference—7.8 bushels.

WHEAT POOL DISTRICT 12

ALBERT MAURICE L'HOIR, LYDDEN											
2D	12	1	A	Banner.....	47	39	..	8.7	30.5	2 Fd.	L w.
..	..	..	..	Victory.....	39	33	..	8.7	34	3 C.W.	L w.
..	..	..	..	Gopher.....	61	33	91	9.7	38	2 C.W.	..
..	..	..	..	Vanguard.....	53	33	..	8.7	34.5	2 C.W.	..
..	..	..	..	Eagle.....	46	33	..	9.3	34	2 C.W.	..
..	..	..	..	Anthony.....	42	37	..	8.7	35	3 C.W.	L w.

Necessary difference—7.6 bushels.

Cereal variety zone	Dist.	Sub-dist.	Test designation	Varieties	Yield bus. per acre	Plant height in inches	Days seed-ing to ripe	Straw strength	Pounds per measured bushel	Commer-cial grades	Grading remarks
EMIL LEO LEHNERT, PALO											
2D	12	2	A	Banner.....	92	39	89	10	38	3 C.W.	G.
"	"	"	"	Victory.....	71	37	90	10	41	3 C.W.	G.
"	"	"	"	Gopher.....	79	35	84	10	41	3 C.W.	G.
"	"	"	"	Vanguard.....	86	36	90	10	39	3 C.W.	Hl.
"	"	"	"	Eagle.....	96	37	91	10	40	3 C.W.	"
"	"	"	"	Anthony.....	84	36	89	10	41.5	2 C.W.	"
Necessary difference—11.9 bushels.											
LAWRENCE VINCENT FRED MERKOWSKY, CAVELL											
2D	12	3	A	Banner.....	37	30	87	9.3	36	3 C.W.	G.
"	"	"	"	Victory.....	32	27	87	9.7	36	3 C.W.	G.
"	"	"	"	Gopher.....	24	25	81	10	38.5	3 C.W.	G.
"	"	"	"	Vanguard.....	20	24	83	10	36.5	3 C.W.	G.
"	"	"	"	Eagle.....	28	27	86	10	36	3 C.W.	G.
"	"	"	"	Anthony.....	27	27	86	9.3	39.5	2 C.W.	G.
No significant yield difference between varieties owing to unusual yield fluctuations within the test.											
HAROLD WAYNE HARLOW, CACTUS LAKE											
2D	12	6	A	Banner.....	54	36	90	9.3	38.5	2 C.W.	"
"	"	"	"	Victory.....	48	33	91	9.5	40	2 C.W.	"
"	"	"	"	Gopher.....	47	29	88	9.7	39	3 C.W.	G.
"	"	"	"	Vanguard.....	51	31	87	9.3	37	2 C.W.	"
"	"	"	"	Eagle.....	58	34	92	9.5	38	2 C.W.	G.
"	"	"	"	Anthony.....	43	31	90	9.2	39.5	2 C.W.	"
Necessary difference—7.6 bushels.											
LLOYD GEORGE HAMMELL, SENLAC											
2D	12	7	A	Banner.....	45	"	"	"	40	2 C.W.	"
"	"	"	"	Victory.....	52	"	"	"	41.5	2 C.W.	"
"	"	"	"	Gopher.....	37	"	"	"	41	2 C.W.	"
"	"	"	"	Vanguard.....	45	"	"	"	38.5	2 C.W.	"
"	"	"	"	Eagle.....	61	"	"	"	38.5	2 C.W.	"
"	"	"	"	Anthony.....	41	"	"	"	40	2 C.W.	"
Necessary difference—13.2 bushels.											
HENRY EUGENE HARPER, WASECA											
3E	12	8	A	Banner.....	47	"	"	"	35	3 C.W.	L w.
"	"	"	"	Victory.....	44	"	"	"	36	2 C.W.	"
"	"	"	"	Gopher.....	"	"	"	"	"	"	"
"	"	"	"	Vanguard.....	25	"	"	"	38.5	1 C.W.	"
"	"	"	"	Eagle.....	51	"	"	"	37	2 C.W.	G.
"	"	"	"	Anthony.....	44	"	"	"	39.5	2 C.W.	S hl.
Gopher samples not received.											
LAIRD ANDREW BUSCH, CUTKNIFE											
2D	12	9	A	Banner.....	72	43	86	8.7	37.5	2 C.W.	"
"	"	"	"	Victory.....	70	43	93	8	39.5	2 C.W.	S hl.
"	"	"	"	Gopher.....	85	40	80	10	40.5	2 C.W.	G.
"	"	"	"	Vanguard.....	88	42	80	8.3	38	2 C.W.	"
"	"	"	"	Eagle.....	76	41	94	8.7	37	2 C.W.	"
"	"	"	"	Anthony.....	69	42	93	8.3	39	2 C.W.	"
Necessary difference—12.3 bushels.											
Tests Discarded on Account of Severe Damage by Drought, Pests, Hail, or Other Causes.											
12	5	A	James J. Zunti, Luseland.	12	10	A	Floyd Hitchins Laycock, R.R. No. 1, Battleford				
WHEAT POOL DISTRICT 13											
JOHN W. LUCUIK, WAKAW											
3E	13	9	A	Banner.....	42	27	82	9.2	38	2 C.W.	S g.
"	"	"	"	Victory.....	37	27	85	9	38.5	3 C.W.	G.
"	"	"	"	Gopher.....	37	24	78	9.5	35.5	3 C.W.	G. L w.
"	"	"	"	Vanguard.....	31	26	81	9.5	37.5	3 C.W.	G.
"	"	"	"	Eagle.....	41	26	82	9.5	36.5	3 C.W.	G.
"	"	"	"	Anthony.....	43	27	83	9.5	38.5	2 C.W.	S g.
No significant yield difference between varieties.											
WHEAT POOL DISTRICT 14											
EDWARD JOSEPH STEVENS, NUT MOUNTAIN											
3C	14	1	A	Banner.....	26	"	"	"	40	2 C.W.	S hl.
"	"	"	"	Victory.....	21	"	"	"	42	2 C.W.	S hl.
"	"	"	"	Gopher.....	12	"	"	"	41.5	2 C.W.	"
"	"	"	"	Vanguard.....	17	"	"	"	39.5	1 C.W.	"
"	"	"	"	Eagle.....	25	"	"	"	42	2 C.W.	Hl.
"	"	"	"	Anthony.....	10	"	"	"	42	1 C.W.	"
Necessary difference—10.4 bushels.											

Cereal variety zone	Dist.	Sub-dist.	Test designation	Varieties	Yield bus. per acre	Plant height in inches	Days seed-ing to ripe	Straw strength	Pounds per measured bushel	Commer-cial grades	Grading remarks
GABRIEL RAYMOND LEE, R.R. No. 1, WADENA											
3C	14	2	A	Banner.....	59	31	99	10	38.5	2 C.W.	....
"	"	"	"	Victory.....	48	28	99	9.3	40	2 C.W.	....
"	"	"	"	Gopher.....	17	29	91	9	39.5	2 C.W.	....
"	"	"	"	Vanguard.....	36	28	96	9	38.5	2 C.W.	....
"	"	"	"	Eagle.....	55	29	101	9.3	40.5	2 C.W.	....
"	"	"	"	Anthony.....	44	27	100	8.7	42	2 C.W.	....
Necessary difference—6.8 bushels.											

LEO HLECK, ENGELFELD											
3C	14	4	A	Banner.....	59	40	99	9	39.5	2 C.W.	W.
"	"	"	"	Victory.....	66	39	99	9	41.5	2 C.W.	W.
"	"	"	"	Gopher.....	52	34	93	9	40.5	3 C.W.	W.
"	"	"	"	Vanguard.....	50	35	98	9	38.5	2 C.W.	....
"	"	"	"	Eagle.....	72	37	98	9	41	3 C.W.	W.
"	"	"	"	Anthony.....	58	37	98	9	41	3 C.W.	W.
Necessary difference—9.3 bushels.											

DOUGLAS A. SHIELDS, PLEASANTDALE											
4A	14	5	A	Banner.....	64	40	....	7.3	41	3 C.W.	S g.
"	"	"	"	Victory.....	60	37	....	7.3	41.5	2 C.W.	....
"	"	"	"	Gopher.....	54	31	....	7	40	2 C.W.	....
"	"	"	"	Vanguard.....	64	32	....	7.3	39.5	2 C.W.	S g.
"	"	"	"	Eagle.....	69	36	....	8	40	3 C.W.	W.
"	"	"	"	Anthony.....	58	37	....	6.7	42	2 C.W.	....
No significant yield difference between varieties.											

WILLIAM GORDON DICKIE, MELFORT											
3D	14	7	C	Banner.....	98	43	101	8	41	2 C.W.	....
"	"	"	"	Victory.....	98	40	101	9.3	42.5	2 C.W.	....
"	"	"	"	Gopher.....	79	40	91	10	40.5	2 C.W.	....
"	"	"	"	Vanguard.....	102	41	92	6	38	2 C.W.	....
"	"	"	"	Eagle.....	97	42	101	9.3	41.5	2 C.W.	SI w.
"	"	"	"	Anthony.....	91	42	101	5.3	41.5	2 C.W.	....
No significant yield difference between varieties owing to unusual yield fluctuations within the test.											

EDWARD JOHN HAINSTOCK, SYLVANIA											
3D	14	8	C	Banner.....	37	27	87	10	39.5	3 C.W.	G.
"	"	"	"	Victory.....	36	24	90	10	41	2 C.W.	S g.
"	"	"	"	Gopher.....	37	25	90	10	38.5	2 C.W.	S g.
"	"	"	"	Vanguard.....	44	26	88	10	36.5	2 C.W.	S g.
"	"	"	"	Eagle.....	43	26	92	10	39	3 C.W.	G.
"	"	"	"	Anthony.....	39	25	88	10	41	2 C.W.	S g.
No significant yield difference between varieties.											

WILLIAM ELMER CRAVEN, AYLSHAM											
3D	14	10	C	Banner.....	107	39	107	7	37.5	3 C.W.	G.
"	"	"	"	Victory.....	97	37	106	8.7	42.5	2 C.W.	S hl.
"	"	"	"	Gopher.....	91	37	99	9	40	3 C.W.	G.
"	"	"	"	Vanguard.....	96	37	101	7.7	39.5	3 C.W.	HL.
"	"	"	"	Eagle.....	111	40	107	9	41.5	2 C.W.	G.
"	"	"	"	Anthony.....	105	39	105	4	41	2 C.W.	S g.
Necessary difference—10.4 bushels.											

Tests Discarded on Account of Severe Damage by Drought, Pests, Hail, or Other Causes.
14 6 C Ivar Olaf Whitford, Rose Valley.

WHEAT POOL DISTRICT 15											
EMILE BLANCHARD, JR., DUCK LAKE											
3E	15	3	C]	Banner.....	38	27	97	6	39	2 C.W.	....
"	"	"	"	Victory.....	29	24	97	5.7	41	2 C.W.	....
"	"	"	"	Gopher.....	19	25	100	6.7	41.5	2 C.W.	....
"	"	"	"	Vanguard.....	18	28	97	6	38.5	2 C.W.	....
"	"	"	"	Eagle.....	39	27	96	7	40.5	2 C.W.	....
"	"	"	"	Anthony.....	36	27	98	7.3	42	2 C.W.	....
Necessary difference—10.3 bushels.											

MISS BEATRICE MARIE FRIESEN, ROSTHERN											
3E	15	4	C	Banner.....	18	18	....	8	39.5	2 C.W.	....
"	"	"	"	Victory.....	17	18	....	8	41	1 C.W.	....
"	"	"	"	Gopher.....	17	18	....	8	41	2 C.W.	....
"	"	"	"	Vanguard.....	16	20	....	8	39.5	2 C.W.	....
"	"	"	"	Eagle.....	14	20	....	8	40	1 C.W.	....
"	"	"	"	Anthony.....	18	21	....	8	42	1 C.W.	....
No significant yield difference between varieties.											

WHEAT POOL DISTRICT 16

Cereal variety zone	Dist.	Sub-dist.	Test designation	Varieties	Yield bus. per acre	Plant height in inches	Days seed-ing to ripe	Straw strength	Pounds per measured bushel	Commer-cial grades	Grading remarks
GUSTAVE HULLEBUSH, R.R. No. 3, NORTH BATTLEFORD											
3E	16	3	A	Banner.....	25	29	93	9.3	39	2 C.W.	G.
..	Victory.....	29	30	93	9.7	39.5	2 C.W.	..
..	Gopher.....	33	25	89	10	40	3 C.W.	G.
..	Vanguard.....	29	27	93	10	36.5	3 C.W.	G.
..	Eagle.....	32	29	93	9.3	40.5	3 C.W.	G.
..	Anthony.....	23	27	93	9	41.5	2 C.W.	..
No significant yield difference between varieties owing to unusual yield fluctuations within the test.											

CLAYTON ARTHUR EDGELOW, CAVALIER											
3E	16	4	A	Banner.....	71	43	101	10	40.5	1 C.W.	..
..	..	..	..	Victory.....	63	39	100	9.3	42.5	1 C.W.	..
..	..	..	..	Gopher.....	52	28	96	8	41.5	1 C.W.	..
..	..	..	..	Vanguard.....	66	36	100	8.3	40	1 C.W.	..
..	..	..	..	Eagle.....	55	37	100	9.3	41.5	1 C.W.	..
..	..	..	..	Anthony.....	57	35	100	8.3	42	1 C.W.	..
No significant yield difference between varieties owing to unusual yield fluctuations within the test.											

DANIEL GEDES, PAYNTON											
3E	16	5	C	Banner.....	59	35	92	9.5	38.5	1 C.W.	..
..	..	..	..	Victory.....	53	35	92	9.6	39.5	1 C.W.	..
..	..	..	..	Gopher.....	58	31	85	10	40	1 C.W.	..
..	..	..	..	Vanguard.....	56	32	86	9.8	36.5	2 C.W.	..
..	..	..	..	Eagle.....	64	35	92	9.8	39	1 C.W.	..
..	..	..	..	Anthony.....	57	33	91	9.8	39.5	1 C.W.	..
No significant yield difference between varieties.											

JOHN BERNARD WALKER, LLOYDMINSTER											
3E	16	6	C	Banner.....	27	35	..	10	41	2 C.W.	..
..	..	..	..	Victory.....	29	36	..	10	44	2 C.W.	S hl.
..	..	..	..	Gopher.....	24	31	..	10	41	2 C.W.	..
..	..	..	..	Vanguard.....	22	32	..	10	40	2 C.W.	..
..	..	..	..	Eagle.....	35	35	..	10	41.5	2 C.W.	S g.
..	..	..	..	Anthony.....	29	33	..	10	43	2 C.W.	S hl.
No significant yield difference between varieties owing to unusual yield fluctuations within the test.											

PHILIP ROTHERY, DEER CREEK											
3E	16	7	A	Banner.....	30	34	..	..	34.5	3 C.W.	L w.
..	..	..	..	Victory.....	22	35	..	..	36	2 C.W.	..
..	..	..	..	Gopher.....	33	30	..	..	38	2 C.W.	..
..	..	..	..	Vanguard.....	27	31	..	..	36	2 C.W.	..
..	..	..	..	Eagle.....	31	32	..	..	35	3 C.W.	L w.
..	..	..	..	Anthony.....	22	37	..	..	35.5	3 C.W.	L w.
No significant yield difference between varieties owing to unusual yield fluctuations within the test.											

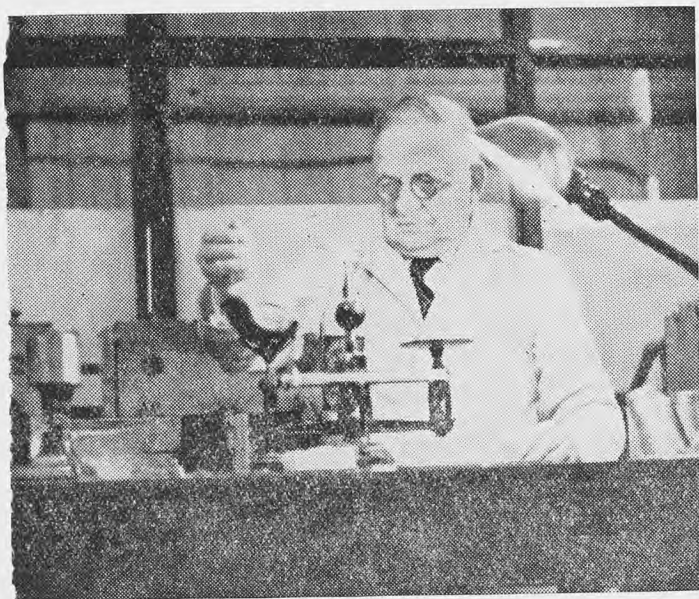
JAMES GEORGE COCKBURN, TURTLEFORD											
3E	16	8	A	Banner.....	80	43	97	9.7	39.5	2 C.W.	S hl.
..	..	..	..	Victory.....	57	43	97	10	39	3 C.W.	S hl.
..	..	..	..	Gopher.....	61	31	90	10	37.5	1 Fd.	S hl. S g.
..	..	..	..	Vanguard.....	65	39	95	10	38.5	3 C.W.	S hl.
..	..	..	..	Eagle.....	73	41	97	9.7	40	2 C.W.	S hl.
..	..	..	..	Anthony.....	67	39	97	9.7	41.5	3 C.W.	S hl.
No significant yield difference between varieties owing to unusual yield fluctuations within the test.											

BELTON HENRY THISTLETHWAITE, GLENBUSH											
4B	16	9	A	Banner.....	56	35	91	9	37.5	3 C.W.	G.
..	..	..	..	Victory.....	52	35	91	9	36.5	3 C.W.	G. W.
..	..	..	..	Gopher.....	48	30	87	7.3	39.5	2 C.W.	..
..	..	..	..	Vanguard.....	46	31	89	9	37	3 C.W.	G. W.
..	..	..	..	Eagle.....	68	34	91	9	39	3 C.W.	G. W.
..	..	..	..	Anthony.....	54	34	91	8	38.5	3 C.W.	G. W.
Necessary difference—10.4 bushels.											

JAMES DUNCAN BUCK, MEDSTEAD											
4B	16	9	D	Banner.....	58	..	..	10	41	1 C.W.	..
..	..	..	..	Victory.....	77	..	..	10	42.5	1 C.W.	..
..	..	..	..	Gopher.....	52	..	..	10	42	1 C.W.	..
..	..	..	..	Vanguard.....	67	..	..	10	41	1 C.W.	..
..	..	..	..	Eagle.....	70	..	..	10	41.5	1 C.W.	..
..	..	..	..	Anthony.....	63	..	..	10	43.5	1 C.W.	..
Necessary difference—yields bulked.											



The Oat Test of Gustave Hullebush, North Battleford.



Weighing and grading the samples in the laboratory of the Saskatchewan Wheat Pool, in Regina.

BARLEY

NAMES AND DISEASE REACTIONS OF THE VARIETIES USED IN THE TEST

Regal was developed by Dr. J. B. Harrington at the University of Saskatchewan by mass selection from a backcross of Manchuria x Lion on Manchuria made at the Minnesota Experiment Station. (Lion was one of the original smooth-awned barleys brought from Africa to America for breeding purposes.) It is a nodding, six-rowed, smooth-awned barley with bright straw-colored kernels. It is susceptible to stem rust and moderately susceptible to loose and covered smut.

Newal was developed at the University of Alberta from a cross made in 1919 between O.A.C. 21 and a Minnesota hybrid from Manchuria x Lion. It is a nodding, six-rowed, smooth-awned variety with straw-colored kernels. Its disease reactions resemble those of Regal.

Rex was originated by Dr. J. B. Harrington at the University of Saskatchewan by crossing Velvet, a sister of Regal, with Hannchen. It is a nodding, two-rowed, smooth-awned variety with deep straw-colored kernels. Its disease reactions are similar to those of Regal.

Plush was originated at the Dominion Experiment Station, Brandon, by Mr. S. J. Sigfusson from the cross Lion x Bearer. It is a new, six-rowed, smooth-awned variety with straw-colored kernels. It is susceptible to rusts and smuts.

O.A.C. 21, produced by selection from Manchuria by Dr. C. A. Zavitz at the Ontario Agricultural College, is the standard malting barley of Canada. It is a nodding, six-rowed, rough-awned variety with greenish-blue seeds. It is moderately susceptible to rusts, susceptible to loose smut and fairly resistant to covered smut.

Olli is a Swedish introduction of recent years. It is a nodding, six-rowed, rough-awned variety with both straw-colored and greenish-blue kernels. Olli is a malting type barley valuable because of its extreme earliness. In disease reactions it resembles O.A.C. 21.

TABLE No. 35.—AVERAGE YIELD IN BUSHELS PER ACRE SUMMARIZED IN CEREAL VARIETY ZONES.

Cereal Variety Zone	No. of Satisfactory Tests	Regal	Newal	Rex	Plush	O.A.C. 21	Olli	Necessary Difference in Bushels
2A.....	7	23.0	25.8	22.3	29.0	24.1	18.5	4.7
3A.....	4	33.3	33.9	29.3	41.3	27.0	19.3	3.9
3B & 3C.....	8	52.5	56.7	45.4	59.7	47.2	40.9	3.5
3D & 3E.....	8	45.7	48.3	44.4	50.7	43.9	36.4	3.6
4A & 4B.....	6	54.3	58.2	49.0	62.7	53.0	46.2	11.4

YIELD

Plush was the highest yielding variety and in all zones it outyielded two or more of the other varieties by differences which are significant. It showed its best yielding ability in Zone 3A where it yielded significantly more than all the other varieties. **Newal** ranked second in yield, the difference between this variety and Plush being 3.6 bushels. **Newal** significantly outyielded Olli in all zones and in Zone 3A and in the combined Zones 3B and 3E it also exceeded Rex and O.A.C. 21 by differences which are significant. It yielded decidedly well in Zones 3B and 3C where, although it ranked second to Plush, it yielded significantly more than all other varieties. **Regal** was third in yield. In all zones it was outyielded by both Plush and Newal, but it was a consistently higher yielder than Rex and Olli, and in all zones (with the exception of 2A and the combined Zones 4A and 4B) it yielded significantly more than the latter variety. It yielded best in the combined Zones 3B and 3C where it exceeded Rex, O.A.C., and Olli by differences which are significant. **O.A.C. 21** was fourth in yielding ability. In three areas it significantly outyielded Olli but failed to exceed Rex in any of the zones by a significant difference. **Rex** ranked fifth in yield. It yielded significantly more than Olli in Zone 3A and the combined Zones 3B and 3C, and 3D and 3E. It also outyielded O.A.C. 21 in Zone 3A and the combined Zones 3D and 3E but failed to do so by a difference

which is significant. Olli was the lowest yielding variety in all zones. The yield difference between Olli and the other varieties is as follows: Rex, 7 bushels; O.A.C., 8.2 bushels; Regal, 10.8 bushels; Newal, 13.9 bushels, and Plush, 17.5 bushels. In considering yielding ability the reader should keep in mind that 1940 was a very favorable crop season and that certain varieties which are unable to stand much drought do well under such favorable conditions. O.A.C. 21 and Plush and to a lesser extent Regal and Newal are such varieties. On the other hand the drought resistant variety Rex does not take as full advantage of favorable conditions as these others and therefore in 1940 appears at a disadvantage.

TABLE No. 36.—AVERAGE NUMBER OF DAYS FROM SOWING TO RIPENING SUMMARIZED IN CEREAL VARIETY ZONES.

Cereal Variety Zone	Regal	Newal	Rex	Plush	O.A.C. 21	Olli
2A.....	82.8	81.5	83.1	82.0	81.8	79.5
3A.....	88.0	82.0	88.0	88.0	84.0	77.0
3B & 3C.....	90.7	90.7	90.0	90.3	90.0	87.3
3D & 3E.....	92.0	90.0	92.7	90.2	91.4	88.4
4A & 4B.....	95.0	93.7	95.0	95.7	92.2	89.0

DAYS FROM SOWING TO RIPENING

Table No. 36 shows the average number of days required by each variety from sowing to ripening. Olli exceeded all varieties in all zones by differences which ranged from 1.2 days to 11 days. Although a few varieties exceeded Newal in "earliness" in a few zones generally it ranked second to Olli. In Zones 3B and 3C, however, it tied with Regal and was slightly later than the other varieties. In most zones O.A.C. was third in "earliness" being approximately one day earlier than Regal, Rex and Plush. Little difference appeared between the last mentioned varieties although of the three Plush ripened approximately .5 day earlier.

TABLE No. 37.—AVERAGE PLANT HEIGHT IN INCHES SUMMARIZED IN CEREAL VARIETY ZONES.

Cereal Variety Zone	Regal	Newal	Rex	Plush	O.A.C. 21	Olli
2A.....	27.0	27.8	24.5	27.2	26.0	24.5
3A.....	36.0	35.0	37.0	35.0	31.0	32.0
3B & 3C.....	31.3	31.0	31.9	30.1	32.1	29.4
3D & 3E.....	34.7	34.9	35.0	33.6	34.3	31.8
4A & 4B.....	33.7	33.2	32.5	33.0	34.2	34.0

PLANT HEIGHT

The height of each variety in inches is shown in Table No. 37. Some variations were shown in the different zones. Taking the test as a whole there was little difference in the comparative heights of Regal, Newal, and O.A.C. An exception, however, appeared in Zone 3A where O.A.C. was decidedly taller than the other varieties. With the exception of Zone 2A and Zones 4A and 4B, where the position was reversed, Rex was taller than Plush. O.A.C. exceeded Olli in all zones and generally Olli was decidedly shorter than the other varieties.

TABLE No. 38.—COMPARISON OF STRAW STRENGTH SUMMARIZED IN CEREAL VARIETY ZONES.

Cereal Variety Zone	Regal	Newal	Rex	Plush	O.A.C. 21	Olli
2A.....	9.2	8.9	9.0	9.3	9.1	8.0
3A.....	9.1	9.1	9.2	9.1	8.9	8.8
3B & 3C.....	9.1	9.2	8.7	8.7	9.2	8.7
3D & 3E.....	8.8	9.4	8.3	8.3	8.7	8.0
4A & 4B.....	9.7	9.5	9.1	9.2	8.2	9.0

STRAW STRENGTH

Table No. 38 shows the strength of straw of each variety based on the markings 0 to 10 as in the wheat test. In Zones 2A and 3A, Newal was somewhat inferior to some of the other varieties but it was equal or superior to nearly all varieties in other zones, the exception being in Zones 4A and 4B where Regal excelled. Although some variations were shown in the different zones, generally, taking the test as a whole Regal ranked second in this characteristic. It was decidedly inferior to Newal in Zones 3D and 3E but showed excellent straw strength in Zones 4A and 4B. A general comparison shows that Plush and O.A.C. tied, Plush showing superiority in the southeastern and northern zones, while O.A.C. was superior in the east. Rex excelled in Zone 3A and was generally superior to Olli. It was inferior to many of the other varieties in other zones. Olli was the weakest strawed variety. In Zones 3B and 3C it tied with Rex and Plush, and in Zones 4A and 4B it was superior to O.A.C. but in other zones it showed some inferiority to all varieties.

TABLE No. 39.—COMPARISON OF NECK STRENGTH SUMMARIZED BY CEREAL VARIETY ZONES.

Cereal Variety Zone	Regal	Newal	Rex	Plush	O.A.C. 21	Olli
2A.....	9.3	8.3	8.6	9.5	8.2	8.1
3A.....	8.8	8.0	8.3	8.4	8.3	8.0
3B & 3C.....	9.1	8.7	8.6	8.6	8.6	7.3
3D & 3E.....	8.6	8.3	8.8	8.4	8.1	7.8
4A & 4B.....	8.5	6.3	8.8	8.0	5.7	6.3

NECK STRENGTH

Table No. 39 shows the neck strength of each variety in the different areas. In Zone 2A Plush was superior to Regal, and in Zones 3D and 3E, and 4A and 4B, Rex was slightly superior to the Regal variety. In other zones, however, Regal excelled. In Zones 2A and 3A Rex was less strong in the neck than Plush, while in the northern zones this position was reversed. The neck strength of Newal was generally superior to either O.A.C. or Olli. It was, however, particularly weak in Zones 3A, and 4A and 4B. With the exception of Zones 4A and 4B O.A.C. was stronger than Olli but in Zones 4A and 4B, O.A.C. was decidedly inferior to all varieties. Taking the test as a whole, however, Olli was the weakest variety.

TABLE No. 40.—BUSHEL WEIGHT IN POUNDS (CLEANED) SUMMARIZED IN CEREAL VARIETY ZONES.

Cereal Variety Zone	Regal	Newal	Rex	Plush	O.A.C. 21	Olli
2A.....	48.6	48.2	50.7	47.0	46.6	46.2
3A.....	49.0	51.0	51.0	49.5	50.5	48.5
3B & 3C.....	51.3	51.7	52.7	50.7	51.4	50.9
3D & 3E.....	52.4	52.0	54.2	50.6	51.7	51.6
4A & 4B.....	52.4	52.8	54.4	51.8	52.2	51.9

WEIGHT PER MEASURED BUSHEL

Table No. 40 shows the average weight per measured bushel by Cereal Variety Zones. With the exception of Zone 3A where Rex tied with Newal in bushel weight, Rex exceeded the other varieties in all zones. Generally, little difference appeared between the weights of Regal and Newal, the most noticeable variation appearing in Zone 3A where Newal outweighed Regal by a difference of 2 lbs. O.A.C. appeared to most advantage in Zone 3A and the combined Zones 3B and 3C, and taking the test as a whole, it ranked fourth in bushel weight. Plush exceeded Olli in Zones 2A and 3A by nearly 1 lb., but in the other areas Olli outweighed Plush by slight differences. Taking the test as a whole, Olli exceeded Plush in bushel weight by a slight difference of .2 lb.

TABLE No. 41.—SUMMARIZED RESULTS FOR CEREAL VARIETY ZONE 2A.

	Regal	Newal	Rex	Plush	O.A.C. 21	Olli
Yield in bushels per acre.....	23.0	25.8	22.3	29.0	24.1	18.5
Days from sowing to ripening.....	82.8	81.5	83.1	82.0	81.8	79.5
Height of plant in inches.....	27.0	27.8	24.5	27.2	26.0	24.5
Straw strength.....	9.2	8.9	9.0	9.3	9.1	8.0
Neck strength.....	9.3	8.2	8.6	9.5	8.2	8.1
Bushel weight in pounds.....	48.6	48.2	50.7	47.0	46.6	46.2
Commercial grades in percentage:						
2 C.W. 2 row	—	—	29.0	—	—	—
2 C.W. 6 row	—	—	—	—	29.0	28.0
3 C.W.	71.0	100.0	—	57.0	28.0	44.0
1 Fd.	29.0	—	71.0	15.0	28.0	—
2 Fd.	—	—	—	28.0	15.0	28.0

Necessary difference—4.7 bushels.

CEREAL VARIETY ZONE 2A

Summarized results for Zone 2A are shown in Table No. 41. **Yield.**—The results of this zone, show that Plush, although it was the highest yielding variety failed to yield significantly more than Newal. Plush, however, significantly outyielded the other varieties. Newal, yielding 3.6 bushels less than Plush failed to exceed O.A.C., Regal, or Rex by a significant difference, but significantly outyielded Olli. O.A.C. ranked third in yield but outyielded only Olli by a difference which is significant. Regal yielded only .7 bushel more than Rex, and 4.5 bushels more than Olli, differences which are not significant. Rex ranked fifth in yielding ability but failed to yield significantly more than Olli. **"Earliness."**—Olli was the earliest maturing variety ripening earlier than the other varieties by following differences: Newal, 2 days; O.A.C., 2.3 days; Plush, 2.5 days; Regal, 3.3 days, and Rex 3.6 days. **Height.**—Newal was the tallest variety exceeding the others by the following differences: Plush, .6 inch; Regal, .8 inch; O.A.C., 1.8 inches; Rex and Olli, 3.3 inches. **Straw Strength.**—Plush showed the strongest straw but was closely followed by Regal, O.A.C., Rex, and Newal. Olli was decidedly weaker than the other varieties. **Neck Strength.**—Plush also exceeded the other varieties in neck strength but was again closely followed by Regal. Rex ranked third in neck strength. Newal and O.A.C. tied, showing slight superiority to Olli which was inferior to all varieties. **Weight.**—Rex excelled, outweighing the other varieties by the following differences: Regal, 2.1 lbs.; Newal, 2.5 lbs.; Plush, 3.7 lbs.; O.A.C., 4.1 lbs., and Olli, 4.5 lbs. **Grades.**—Some thin and peeled kernels appeared in a number of samples, and some black point was also in evidence. Regal and Newal appeared to show less defects than the other varieties. Newal consistently graded 3 C.W. and although some samples of the other varieties graded higher, taking the tests as a whole, Newal appeared to excel in commercial grades. Considerable variation appeared in the grades placed on some of the other varieties. Generally, however, Rex ranked second to Newal. Regal was third. Olli was slightly superior to O.A.C., while Rex was low. **Smut.**—No loose or covered smut was reported. **Rust.**—Rust infection appeared on the stems of all varieties. Olli was most heavily infected, followed by Regal, Newal, and O.A.C., in the order named. Rex and Plush showed somewhat less infection than the other varieties. **Shattering.**—All varieties suffered some loss by shattering. Differences were not of a marked nature but Olli appeared to have sustained the heaviest loss.

General Results.—The general performance of Plush was outstanding. It excelled in yield and the satisfactory nature of its other characteristics more than offset its inferiority to a number of the other varieties in bushel weight and commercial grades. Of the other smooth-awned varieties, Regal and Newal appeared to have made a better showing than Rex. Although the latter variety has excelled in bushel weight, and compared to Newal is slightly stronger in both straw and neck, Rex, however, was inferior in other characteristics. It was more than 3 inches shorter than Newal, which if the straw is to be used for feed is a handicap. Newal failed to outyield Regal by a significant difference, and taking all characteristics into consideration, there appears to be little difference between these two varieties. The results suggest that Plush, Regal, and Newal, are the best smooth-awned varieties for use in this area. Of the two rough-awned varieties, O.A.C. 21 is distinctly better than Olli. Olli was earlier than O.A.C. but the difference was not of a marked nature, and in all other characteristics,

O.A.C. was superior. Considering grain only, O.A.C. has made a relatively good showing in this zone. Considering the character of the season it may be taken that Plush, O.A.C. 21 and Olli did much better and Rex poorer than would be expected in a dry season.

TABLE No. 42.—SUMMARIZED RESULTS FOR CEREAL VARIETY ZONE 3A.

	Regal	Newal	Rex	Plush	O.A.C. 21	Olli
Yield in bushels per acre.....	33.3	33.9	29.3	41.3	27.0	19.3
Days from sowing to ripening.....	86.0	82.0	88.0	88.0	84.0	77.0
Height of plant in inches.....	36.0	35.0	37.0	35.0	39.0	32.0
Straw strength.....	9.1	9.1	9.2	9.1	8.9	8.8
Neck strength.....	8.8	8.0	8.3	8.4	8.3	8.0
Bushel weight in pounds.....	49.0	51.0	51.0	49.5	50.5	48.5
Commercial grades in percentage:						
2 C.W. 2 row	—	—	67.0	—	—	—
2 C.W. 6 row	—	—	—	—	67.0	67.0
3 C.W. 6 row	67.0	100.0	—	67.0	—	33.0
1 Fd.	33.0	—	33.0	33.0	33.0	—

Necessary difference—3.9 bushels.

CEREAL VARIETY ZONE 3A

Summarized results for Zone 3A are shown in Table No. 42. **Yield**—Plush excelled in this zone, yielding significantly more than the other varieties. Newal ranked second in yielding ability. It outyielded Regal by a difference of only .6 bushel, but both Newal and Regal outyielded Rex, O.A.C., and Olli by differences which are significant. Rex outyielded O.A.C. by a difference of 2.3 bushels, a difference which is not significant but Regal, Rex and O.A.C. outyielded Olli by differences which exceeded the necessary difference for the zone. **"Earliness."**—Olli ripened earlier than the other varieties by the following differences: Newal, 5 days; O.A.C., 7 days; Regal, 9 days; and Rex and Plush, 11 days. **Height**.—O.A.C. 21 was the tallest variety, exceeding the others by differences as follows: Rex, 2 inches; Regal, 3 inches; Newal and Plush, 4 inches, and Olli, 7 inches. **Straw Strength**.—Rex was the strongest strawed variety, showing slight superiority to Regal, Newal, and Plush, all of which tied. O.A.C. and Olli were slightly inferior to the other varieties. **Weight**.—Newal and Rex tied. These varieties were closely followed by O.A.C., the difference being only .5 lb. Newal and Rex outweighed the other varieties by the following differences: Plush, 1.5 lbs.; Regal, 2 lbs., and Olli, 2.5 lbs. **Grades**.—Traces of black point appeared in a number of samples, the Rex variety being particularly affected. Some peeled kernels were also in evidence. Some samples of Olli were thin and immature, but despite this Olli excelled in commercial grades. Little difference appeared between the grades of Newal, Rex, and O.A.C. Regal and Plush tied and graded lower than the other varieties. **Smut**.—No loose or covered smut was recorded. **Rust**.—Light traces of stem rust were reported on Plush but the other varieties appeared free from infection. **Shattering**.—No loss was shown to any of the varieties.

General Results.—Only a few tests were available for analysis purposes in the zone. In these tests the yield performance of Plush was outstanding, and its inferiority to some of the varieties in other characteristics hardly offsets its superiority in yield. Of the other smooth-awned varieties Regal and Newal are again superior to Rex. Both Regal and Newal have some

TABLE No. 43.—SUMMARIZED RESULTS FOR CEREAL VARIETY ZONES 3B and 3C.

	Regal	Newal	Rex	Plush	O.A.C. 21	Olli
Yield in bushels per acre.....	52.5	56.7	45.4	59.7	47.2	40.9
Days from sowing to ripening.....	90.7	90.7	90.0	90.3	90.0	87.3
Height of plant in inches.....	31.3	31.0	31.9	30.1	32.1	29.4
Straw strength.....	9.1	9.2	8.7	8.7	9.2	8.7
Neck strength.....	9.1	8.7	8.6	8.6	8.6	7.3
Bushel weight in pounds.....	51.3	51.7	52.7	50.7	51.4	50.9
Commercial grades in percentage:						
2 C.W. 2 row	—	—	44.0	—	—	—
2 C.W. 6 row	—	—	—	—	44.0	33.0
3 C.W. 6 row	56.0	78.0	—	66.0	—	44.0
1 Fd.	44.0	22.0	56.0	34.0	56.0	23.0

Necessary difference—3.5 bushels.

characteristics superior to each other. Newal was four days earlier than Regal but in this zone earliness is not so important as in the northern zones. The most serious handicap to Newal would appear to be its inferiority in neck strength which may result in comparatively heavy losses, particularly in a dry season. Of the two rough-awned varieties, O.A.C. and Olli, the former variety is distinctly superior. Olli was earlier and graded better but these factors failed to compensate for its inferiority in other characteristics.

CEREAL VARIETY ZONES 3B and 3C (Combined Results)

Summarized results for Zones 3B and 3C are shown in Table No. 43.

Yield.—While Plush exceeded the other varieties it failed to yield significantly more than Newal. Both Plush and Newal, however, outyielded the other varieties by differences which exceeded the necessary differences for the zone. Regal yielded comparatively well, exceeding O.A.C., Rex, and Olli by differences which exceeded the necessary difference for the zone. O.A.C. ranked fourth in yield but failed to yield significantly more than Rex. Both O.A.C., and Rex, however, outyielded Olli by differences which are significant. **"Earliness."**—Olli ripened earlier than the other varieties by the following differences: Rex and O.A.C. 21, 2.7 days; Plush, 3 days; and Regal and Newal, 3.4 days. **Height.**—O.A.C. exceeded the other varieties by differences which ranged from .2 inch to 2.7 inches. **Straw Strength.**—Newal and O.A.C. tied, were slightly superior to Regal and somewhat superior to Rex, Plush, and Olli, all of which were also equal. **Neck Strength.**—Regal showed superiority to the other varieties. Newal ranked second. Rex, Plush, and O.A.C. tied. Olli was weaker in neck than the other varieties. **Weight.**—Rex excelled, outweighing the other varieties by the following differences: Newal, 1 lb.; O.A.C., 1.3 lbs.; Regal, 1.4 lbs.; Olli, 1.8 lbs., and Plush, 2. lbs. **Grades.**—Of the smooth-awned varieties, Rex was superior in grades. Generally, Olli graded better than O.A.C. **Smut.**—Light traces of covered and loose smut appeared in one test, Rex being the only variety affected. **Rust.**—Traces of rust were reported on Regal, Rex, and Olli, the Regal variety appeared to show the heaviest infection. **Shattering.**—Some light loss by shattering occurred to all varieties. Regal and Plush sustained somewhat less loss than the other varieties.

General Results.—Plush was the highest yielder, but not significantly higher than Newal. Plush was only slightly earlier than Newal and in all other characteristics Newal showed some superiority. Of the other two smooth-awned varieties, Regal although inferior in grades appeared to be generally superior to Rex, and the premium which may be obtained for the 2-rowed variety hardly compensates for its inferior yield. In this test Plush and Newal appeared to be the best of the smooth-awned varieties. In these zones, if straw is not an important factor to the grower, it might be preferable to grow a malting barley. Of the two rough-awned varieties, O.A.C. 21 significantly outyielded Olli, was only slightly later than the latter variety, and was superior in all other characteristics. It should be pointed out that Rex could be expected to make a much better showing in a dry season, especially in Zone 3C.

TABLE No. 44.—SUMMARIZED RESULTS FOR ZONE 3D and 3E.

	Regal	Newal	Rex	Plush	O.A.C. 21	Olli
Yield in bushels per acre.....	45.7	48.3	44.4	50.7	43.9	36.4
Days from sowing to ripening.....	92.0	90.0	92.7	90.2	91.4	88.4
Height of plant in inches.....	34.7	34.9	35.0	33.6	34.3	31.8
Straw strength.....	8.8	9.4	8.3	8.3	8.7	8.0
Neck strength.....	8.6	8.3	8.8	8.4	8.1	7.8
Bushel weight in pounds.....	52.4	52.0	54.2	50.6	51.7	51.6
Commercial grades in percentage:						
2 C.W. 2 row	—	—	50	—	—	—
2 C.W. 6 row	—	—	—	—	75	63
3 C.W.	75	100	—	75	25	12
1 Feed	25	—	50	25	—	25

Necessary difference—3.6 bushels.

CEREAL ZONES 3D and 3E

(Combined Results)

Summarized results for Zones 3D and 3E are shown in Table No. 44.

Yield.—Plush excelled but it again failed to yield significantly more than Newal. It outyielded the other varieties, however, by differences which exceeded the necessary difference for these zones. Newal was the second highest yielder but not significantly higher than Regal. Newal, however, outyielded the other varieties by differences which are significant. Regal, Rex and O.A.C., although ranking third, fourth and fifth failed to yield significantly more than each other, but each of these varieties yielded significantly more than Olli. **"Earliness."**—Olli exceeded the other varieties by differences which ranged from 1.6 days to 4.3 days. **Height.**—In these combined zones Rex excelled. The differences between Rex, Regal, Newal and O.A.C., however, were only of a slight nature, but Rex exceeded Plush and Olli by 1.4 inches and 3.2 inches respectively. **Straw Strength.**—Newal was decidedly superior to the other varieties. Its nearest competitor was Regal, which was closely followed by O.A.C. Rex and Plush tied in this characteristic and both of these varieties were somewhat superior to the Olli variety. **Neck Strength.**—Rex excelled but only in the case of Olli, which was decidedly inferior, were the differences of a marked nature. **Weight.**—Rex also excelled in weight, outweighing the other varieties by the following differences: Regal 1.8 lbs.; Newal, 2.2 lbs.; O.A.C., 2.5 lbs.; Olli, 2.6 lbs., and Plush, 3.6 lbs. **Grades.**—Black point appeared in two samples of Newal and some peeled kernels were in evidence in all varieties. O.A.C. graded higher than the other varieties. Newal consistently graded 3 C.W. Rex showed marked variation, and was practically equal in grades to Olli. Regal and Plush were equal and graded lower than the other varieties. **Smut.**—Traces of covered smut were reported in the Rex variety in two tests. Loose smut was also shown in the Newal and Plush varieties but only a small number of heads were infected. **Rust.**—Light stem rust infection was reported in all varieties. Olli appeared to show most infection while Rex appeared to be practically free. **Shattering.**—O.A.C. suffered the heaviest loss. The loss sustained by Rex was less than the loss to any of the other varieties.

General Results.—Plush was the highest yielder but not significantly higher than Newal and with the exception of its neck strength, which was slightly inferior, Newal was superior to Plush in all other characteristics. Regal outyielded Rex by a difference of only 1.3 bushels. Rex was slightly later than Regal and slightly inferior in neck strength but was superior in other characteristics. Generally, it would appear that of the smooth-awned varieties, taking all characteristics into consideration, Plush and Newal were more or less equal in desirability and both of these varieties were superior to Regal. Rex was high in bushel weight but was not outstanding in any other characteristic. This variety is not recommended for use in the eastern part of the area (Zone 3D) and at least in so far as this test is concerned the premium which may be obtained would hardly offset its lower yield when compared to either Plush or Newal. Of the two rough-awned varieties, O.A.C. and Olli, apart from the earliness of Olli, (which in this area cannot be disregarded) O.A.C. was distinctly the better variety.

TABLE No. 45.—SUMMARIZED RESULTS FOR CEREAL VARIETY ZONES 4A and 4B.

	Regal	Newal	Rex	Plush	O.A.C 21	Olli
Yield in bushels per acre.....	54.3	58.2	49.0	62.7	53.0	46.2
Days from sowing to ripening.....	95.0	93.7	95.0	95.7	92.2	89.0
Height of plant in inches.....	33.7	33.2	32.5	33.0	34.2	34.0
Straw strength.....	9.7	9.5	9.1	9.2	8.2	9.0
Neck strength.....	8.5	6.3	8.8	8.0	5.7	6.3
Bushel weight in pounds.....	52.4	52.8	54.4	51.8	52.2	51.9
Commercial grades in percentage:						
2 C.W. 2 row	—	—	60.0	—	—	—
2 C.W. 6 row	—	—	—	—	60.0	80.0
3 C.W. 6 row	60.0	80.0	—	60.0	—	20.0
1 Fd.	40.0	20.0	40.0	40.0	40.0	—

Necessary difference—11.4 bushels.

CEREAL VARIETY ZONES 4A and 4B (Combined Results)

Summarized results for Zones 4A and 4B are shown in Table No. 45.

Yield.—While Plush again exceeded the other varieties, it outyielded only Rex and Olli by differences which exceeded the necessary difference. Newal yielded significantly more than Olli, but none of the other varieties outyielded each other by a difference which was significant. **"Earliness."**—Olli exceeded the other varieties by the following differences: O.A.C., 3.2 days; Newal, 4.7 days; Regal and Rex, 6 days; and Plush, 6.7 days. **Height.**—O.A.C. again excelled, being taller than the other varieties by differences which are shown as follows: Olli, .2 inch; Regal, .5 inch; Newal, 1 inch; Plush, 1.2 inches, and Rex, 1.7 inches. **Straw Strength.**—Regal excelled, being slightly superior to Newal. These varieties were followed in sequence by Plush, Rex, and Olli, the difference in each case being only of a slight nature. O.A.C. was decidedly weaker in straw than any of the other varieties. **Neck Strength.**—Rex excelled. The difference, however, between this variety and either Regal or Plush was not of a marked nature. Newal and Olli showed decided inferiority, while O.A.C. was very inferior to Newal and Olli and decidedly inferior to the other varieties. **Weight.**—Rex exceeded all varieties, the differences being shown as follows: Newal, 1.6 lbs.; Regal, 2 lbs.; O.A.C. 21, 2.2 lbs.; Olli, 2.5 lbs., and Plush, 2.6 lbs. **Grades.**—Some black point was in evidence in the Rex variety and a few samples of Olli contained a few green kernels. Some peeled kernels were in evidence in a number of the varieties. Despite the small amount of green kernels, Olli excelled in commercial grades. Rex and O.A.C. practically tied, and ranked second. Newal graded somewhat better than Regal and Plush which were also equal. **Smut, Rust.**—No loose or covered smut was reported and all varieties appeared free of rust infection. **Shattering.**—The loss sustained by shattering to the Olli variety was slightly more than the loss suffered by O.A.C., and somewhat more than the loss to the other varieties.

General Results.—Plush was the highest yielder but not significantly higher than Newal, O.A.C. 21, and Regal. It was somewhat later than the other varieties. Plush was also somewhat inferior in both straw and neck strength to Regal, and was slightly inferior to all varieties in bushel weight. Newal yielded relatively well and was superior to all the smooth-awned varieties in earliness. Its greatest handicap appears to be its particularly weak neck which may result in serious losses. Regal appeared to be reasonably satisfactory. It excelled in straw strength and showed a comparatively strong neck but was not outstanding in any other characteristic. Rex was comparatively low in yield but it was significantly outyielded only by Plush. It excelled in bushel weight and was reasonably satisfactory in other characteristics. A comparison between the rough-awned varieties shows that O.A.C., while outyielding Olli, failed to do so by a difference which was significant. Olli, however, was more than three days earlier and was superior to O.A.C. in both straw and neck strength. O.A.C. outweighed Olli but the latter was superior in commercial grades. Of the smooth-awned varieties, Plush, Regal, and Newal each have some characteristics which are superior and these three varieties appear more or less equal in desirability. In these zones, however, where there are areas well suited to the production of a malting barley, the performance of both O.A.C. 21 and Olli merit consideration. The "earliness" of Olli somewhat offsets its inferiority in yield, and it has exceeded O.A.C. in straw strength, neck strength, and commercial grades. The choice of a variety depends largely upon whether the market value of a malting barley is appreciably higher than that of other barley, and whether or not the straw is needed for feed.

VARIETAL PERFORMANCE Varieties Listed in Alphabetical Order

Newal.—Over the entire test the average yield of Newal was 46.6 bus. per acre. In all zones it ranked second to Plush, and outyielded the other varieties. Taking the tests as a whole Newal was out-yielded by Plush by a difference of 3.6 bus., but, yielded more than the other varieties by differences which were as follows: Regal, 3.1 bus.; O.A.C., 5.7 bus.; Rex, 6.9 bus., and Olli, 13.9 bus. In the following zones Newal yielded significantly more than the varieties mentioned: 2A—Olli; 3A—Rex, O.A.C., and Olli; 3B

and 3C—Regal, O.A.C., Rex, and Olli; 3D and 3E—Rex, O.A.C., and Olli; 4A and 4B—Olli. In nearly all zones Newal ranked second to Olli in earliness and ripened earlier than the other varieties. The exceptions were in 3B and 3C where it tied with Regal and ripened later than Rex, Plush and O.A.C. by slight differences and, in Zones 4A and 4B where it was later than O.A.C. by 1.5 days. Taking the tests as a whole Olli ripened 6.3 days earlier than Newal but, Newal was earlier than the other varieties by differences which ranged from .2 day to 1.5 days. Although some variation occurred in the different zones an average of all tests shows that Newal was the tallest variety exceeding the others by differences which ranged from .1 inch to 2.4 inches. In Zone 2A with the exception of Olli, Newal was inferior in straw strength to all varieties; but, in the other zones it was satisfactory in this characteristic. In neck strength Newal was slightly superior to O.A.C. and Olli but was generally inferior to the other varieties. Over the whole test Newal weighed an average of 51.3 lbs. It was outweighed by Rex by a difference of 1.8 lbs. It exceeded Regal by only .1 lb. but weighed from .6 lb. to 1.2 lbs. more than the other varieties. Newal graded as follows: 3 C.W. 6-row, 92%; 1 Feed, 8%. The percentage of rust infection which appeared on the stems of Newal was less than Olli; approximately equal to Regal; slightly more than O.A.C. and Plush and decidedly more than Rex. No covered smut was reported and a very few loose smutted heads appeared in only one test. The loss by shattering to the Newal variety was slightly less than the loss sustained by Rex, O.A.C., and Olli, but slightly more than the loss sustained by Regal and Plush. Newal is officially recommended in Zones 2B, 2C, 2D, 3D, 3E, 4A, and 4B.

O.A.C. 21.—An average of all tests shows that O.A.C. 21 produced 40.9 bushels per acre. It outyielded Rex by a difference of 1.2 bushels, and Olli by 8.2 bushels, but was exceeded in yield by the other varieties by the following differences: Regal, 2.6 bushels; Newal, 5.7 bushels, and Plush, 9.3 bushels. O.A.C. yielded significantly more than Olli in Zones 2A and 3A and the combined Zones 3B and 3C and 3D and 3E. It failed to outyield any of the other varieties by differences which are significant. In the combined Zones 4A and 4B O.A.C. ripened earlier than all the varieties with the exception of Olli. Some variations were noticeable in the other zones but over the whole project O.A.C. practically tied with Newal in its maturity period. It was earlier than Plush, Regal and Rex by differences of .5 day, 1.1 days and 1.3 days respectively, but was 6.5 days later than Olli. O.A.C. showed its best height in Zone 3A, and the combined Zones 3B and 3C, and 4A and 4B, where it exceeded all varieties. Taking the test as a whole O.A.C., Regal and Newal were practically equal in height. O.A.C. exceeded the other varieties, however, by the following difference: Rex, .4 inch; Plush, .8 inch, and Olli, 2.3 inches. With the exception of Zones 4A and 4B where O.A.C. was decidedly inferior to the other varieties, this variety was fairly satisfactory in straw strength. A general comparison over all tests show that it tied with Plush, was slightly inferior to Regal and Newal, slightly superior to Rex and decidedly superior to Olli. O.A.C. appeared to show more inferiority in neck than in straw strength. It was generally superior to Olli, although in Zones 4A and 4B it was inferior to all varieties. An average of all tests showed that O.A.C. was slightly inferior in neck to Newal, decidedly inferior to Regal, Rex and Plush, but slightly superior to Olli. Taking the tests as a whole O.A.C. showed an average bushel weight of 50.7 pounds. It outweighed Olli and Plush by .4 and .6 pound respectively, but was exceeded in weight by Regal and Newal by approximately .5 pound and by Rex by a difference of 2.4 pounds. The commercial grades placed on the O.A.C. 21 variety are shown as follows: 2 C.W. 6-row, 41%; 3 C.W. 6-row, 25%; 1 Feed, 31%; and 2 Feed, 3%. O.A.C. appeared to be slightly more affected by stem rust than Plush and somewhat more than Rex. It showed decidedly less infection than Olli and somewhat less than the other varieties. No loose or covered smut was reported. The loss by shattering sustained by this variety was slightly less than the loss to Rex or Olli but slightly more than the other varieties. The principal areas in which high quality malting barely can be produced are Zones 3B, 3C, 3D, 3E, 4A, and 4B. O.A.C. is officially recommended for use in these zones.

Olli.—Averaging over the whole test 32.7 bushels per acre Olli was outyielded by all varieties by the following differences: Rex, 7 bushels; O.A.C., 8.2 bushels; Regal, 10.8 bushels; Newal, 13.9 bushels, and Plush, 17.5 bushels. It was the lowest yielding variety in all zones. Olli excelled in

"earliness" in all zones. A general comparison over the whole project shows that Olli ripened earlier than the other varieties by the following differences: Newal, 6.3 days; Plush, 7 days; O.A.C., 6.5 days; Regal, 7.6 days, and Rex, 7.8 days. Olli showed its best height in Zones 4A and 4B, where, with the exception of O.A.C. it exceeded all varieties. Generally, however, it was the shortest variety, being exceeded in height by the other varieties by differences which ranged from 1.5 inches to 2.4 inches. In the combined Zones 3B and 3C Olli tied in straw strength with Rex and Plush and in Zones 4A and 4B it was superior in this characteristic to O.A.C., but in all other zones it was inferior to all varieties. Olli was weaker in neck than the other varieties in most zones. In Zone 3A it tied with Newal and in the combined Zones 4A and 4B it tied with Newal and was superior to O.A.C. In other zones, however, it was inferior to all varieties. Averaging over the whole test 50.3 pounds per bushel, Olli weighed slightly more than Plush but was exceeded in weight by the other varieties by differences which ranged from .4 lb. to 2.8 lbs. The commercial grades placed on the Olli variety are shown as follows: 2 C.W. 6-row, 54%; 3 C.W. 6-row, 31%; 1 Feed, 9%; 2 Feed, 6%. Percentage of rust infection appearing on the stems of Olli was decidedly more than the infection shown on Rex and somewhat more than the other varieties. No loose or covered smut was reported. The amount of loss by shattering to the Olli variety was somewhat more than the loss sustained by any of the other varieties. It should be noted that while Olli ranks as a malting barley, its small kernels are not liked by maltsters and its chief use is as an early variety for weed control. Officially recommended only in Zones 3D, 3E, 4A, and 4B.

Plush.—Averaging over the whole project 50.2 bushels per acre Plush excelled in yield. Over the entire test Plush yielded more than the other varieties by the following differences: Newal, 3.6 bushels; Regal, 6.7 bushels; O.A.C., 9.3 bushels; Rex, 10.5 bushels, and Olli, 17.5 bushels. In the following zones Plush yielded significantly more than the varieties shown: 2A—O.A.C., Regal, Rex and Olli; 3A—Newal, Regal, Rex, O.A.C. and Olli; 3B and 3C—Regal, O.A.C., Rex and Olli; 3D and 3E—Regal, Rex, O.A.C. and Olli; 4A and 4B—Rex and Olli. Plush was exceeded in earliness by Olli in all zones and over the whole test the difference between these two varieties was 7.0 days. Some variation occurred in the different zones, but generally Plush was only .5 day later than O.A.C. and .7 day later than Newal. It ripened earlier than Regal and Rex by differences of .6 day and .8 day respectively. Taking the project as a whole Plush ranked fifth in height. It was 1.5 inches taller than Olli but was exceeded in height by the other varieties by differences which ranged from .4 to .9 inch. In Zone 2A Plush excelled in straw strength, but in all other zones it was inferior to some of the other varieties. Over the whole test it was superior to Olli, slightly superior to Rex, tied with O.A.C., but was slightly inferior to Regal and Newal. In Zone 2A Plush also excelled in neck strength but was inferior to some of the varieties in other zones. Generally taking the test as a whole Plush tied with Rex in this characteristic, was slightly inferior to Regal, but superior to the other varieties. Averaging 50.1 lbs. per bushel, Plush was outweighed by all varieties by differences which ranged from .2 lb. to 3 lbs. Plush graded as follows: 3 C.W. 6-row, 65%; 1 Feed, 29%; 2 Feed, 6%. Plush showed somewhat more stem rust infection than Rex but somewhat less than the other varieties. No covered smut was reported but in one test a number of loose smutted heads were in evidence and Plush appeared to be affected by more loose smut than any of the other varieties. The loss by shattering suffered by this variety was slightly less than the loss sustained by the other varieties. It is of interest that experiment station tests have shown Plush to be especially well adapted to the moister areas and conditions of Eastern Saskatchewan. The 1941 official recommendations include Plush for Zones 2A and 3A.

Regal.—Over the whole test Regal produced an average yield of 43.5 bushels per acre. It was outyielded in all zones by Newal and Plush but was consistently higher in yield than Rex and Olli. Only in one area (Zone 2A) did it fail to outyield O.A.C. In the following zones Regal yielded significantly more than the varieties shown: 3A—Rex, O.A.C. and Olli; 3B and 3C—Rex, O.A.C. and Olli; 3D and 3E—Olli. Although in Zone 3A Regal was 2 days earlier than Rex, generally over all tests little difference appeared between the maturity periods of these two varieties. Generally over the whole testing project, Regal was later than Olli by a difference of 7.6

days. It practically tied with Rex in its maturity period, and was exceeded in earliness by other varieties by differences which ranged from .6 day to 1.3 days. Variations in comparative heights were shown in the different zones but taking the tests as a whole Regal, Newal and O.A.C. were practically equal in plant height. Only in the combined Zones 4A and 4B did Olli exceed Regal by a very slight difference and a general comparison over the whole test showed that Regal was taller than Olli by a difference of 2.3 inches. Regal exceeded Rex in Zone 2A by 2.5 inches and in the combined Zones 4A and 4B by 1.2 inches. In the other zones, however, Rex exceeded Regal in height. Regal was decidedly inferior to Newal in strength of straw in the combined Zones 3D and 3E but in other zones the difference between these two varieties were only of a slight nature. Generally Regal was slightly superior to Rex, Plush and O.A.C., and decidedly superior to Olli. In Zone 2A, Plush showed superiority in neck strength to Regal, and in Zones 3D and 3E, and 4A and 4B, Rex was slightly superior but in the other zones Regal was superior to all varieties. Regal showed an average weight of 51.2 lbs. per bushel. It was approximately equal to Newal, nearly two pounds lighter than Rex but outweighed the other varieties by differences of from .5 lb. to 1.1 lbs. The Regal variety graded as follows: 2 C.W. 6-row, 66%; 1 Feed, 34%. Stem rust infection on the Regal variety was decidedly less than the infection appearing on Olli, but somewhat more than Newal, Plush and O.A.C. and decidedly more than Rex. No covered or loose smut was reported. The loss by shattering sustained by Regal was slightly more than the loss suffered by Plush but slightly less than the other varieties. The official 1941 recommendations include Regal in all zones with the exception of 1A and 1B.

Rex.—Generally, over the whole test, Rex ranked fifth in yielding ability, averaging 39.7 bushels per acre. It outyielded Olli in all zones. In Zone 3A and the combined Zones 3D and 3E it outyielded O.A.C., but in other zones it was outyielded by the other varieties. A general average of all tests shows that Rex exceeded Olli by 7 bushels, but was outyielded by the other varieties by the following differences: O.A.C., 1.2 bushels; Regal, 3.8 bushels; Newal, 6.9 bushels, and Plush, 10.5 bushels. Only in three areas did Rex yield significantly more than any of the other varieties. These were, Zone 3A, the combined Zones 3B and 3C and 3D and 3E where it exceeded Olli by differences which are significant. In "earliness" Rex was exceeded by Olli in all zones. Over the whole test the average difference between these two varieties was 7.8 days. In a few zones Rex ripened earlier than some of the other varieties by slight differences, but over the project it was almost equal to Regal in its maturity period and ripened later than the other varieties by the following differences: O.A.C., 1.3 days; Plush, .8 day, and Newal, 1.5 days. In Zone 2A Rex tied with Olli in being the shortest variety, and in the combined Zones 4A and 4B it was exceeded in height by all varieties. In Zones 3D and 3E it excelled in height and in other zones, it was taller than all varieties with the exception of O.A.C. In Zone 3A Rex excelled in straw strength but in most zones it showed medium strength. Over the whole test Rex appeared superior to Olli in this characteristic but was slightly inferior to the other varieties. Some variation occurred in the comparative neck strengths of Rex and the other varieties in the southeastern and eastern zones, but in all zones Rex was superior to Olli, and in the northern Zones 3D and 3E and 4A and 4B Rex was superior to all varieties in this characteristic. Averaging over the whole project 53.1 lbs. per measured bushel, Rex outweighed the other varieties by differences which ranged from 1.8 lbs. to 3 lbs. The commercial grades placed on the Rex variety are as follows: 2 C.W. 2-row, 50%; 1 Feed, 50%. Rex showed less stem rust infection than any of the other varieties. In two tests, however, traces of covered smut were reported while no infection appeared in the other varieties. In one test loose smut was also reported. The loss by shattering sustained by Rex was slightly less than the loss suffered by Olli, but somewhat more than the other varieties. The official barley recommendations for 1941 include Rex throughout the open plains and most of the park belt, but not in Zones 3D, 4A or 4B.

TABLE No. 45a

Individual Summarized Results of All Tests—BARLEY

WHEAT POOL DISTRICT 1

Cereal variety zone	Dist.	Sub-dist.	Test designation	Varieties	Yield bus. per acre	Plant height in inches	Days seed-ing to ripe	Straw strength	Neck strength	Pounds per measured bushel	Commer-cial grades	Grading remarks
ALEXANDER GERVAIS, ALIDA												
2A	1	2	A	Regal.....	5	22	90	7	8	*	E. 1 Fd.	7% Pl.
..	Newal.....	10	22	91	7.3	5	50	3 C.W. 6 row	..
..	Rex.....	4	20	91	6.7	8.3	*	E. 1 Fd.	9% Pl.
..	Push.....	11	23	90	8.3	9	*	E. 3 C.W. 6 row	..
..	OAC 21.....	7	23	90	7.3	6.3	*	E. 3 C.W. 6 row	T.G.
..	Olli.....	3	19	90	6	2.5	*	E. 3 C.W. 6 row	T.G.
Necessary difference—samples bulked.												
WILLIAM KEITH LEGGE, WILLMAR												
2A	1	4	A	Regal.....	48	36	82	9	7.7	51	1 Fd.	S.b.p.
..	Newal.....	48	36	80	9	9	51	3 C.W. 6 row	B.p.
..	Rex.....	51	34	83	9.7	10	53	1 Fd.	S.b.p.
..	Push.....	55	36	80	8.7	9.7	50	1 Fd.	M.B.p.
..	OAC 21.....	55	37	83	9.3	7.7	51	2 C.W. 6 row	..
..	Olli.....	35	32	73	2	6	50	2 C.W. 6 row	..
No significant yield difference between varieties owing to unusual yield fluctuations within the test.												
JOHN DORNIAN, OUTRAM												
1A	1	6	A	Regal.....	19	33	82	9.7	10	46	3 C.W. 6 row	..
..	Newal.....	39	36	82	9	10	46	3 C.W. 6 row	..
..	Rex.....	26	21	83	9.3	10	50	1 Fd.	M.
..	Push.....	35	33	83	10	10	45	2 Fd.	L.w.
..	OAC 21.....	31	24	79	9	10	44	2 Fd.	L.w.
..	Olli.....	38	24	76	9.7	9	43	2 Fd.	L.w.
No significant yield difference between varieties owing to unusual yield fluctuations within the test.												
ELMER CHARLES STRONGE, COLGATE												
2A	1	7	A	Regal.....	26	24	79	9.3	9.7	46	3 C.W. 6 row	..
..	Newal.....	26	25	76	8	8	46	3 C.W. 6 row	..
..	Rex.....	17	23	77	10	9	48	1 Fd.	T.I.
..	Push.....	19	26	77	9.3	10	44	2 Fd.	L.w.
..	OAC 21.....	16	23	78	9	8.7	43	2 Fd.	L.w.
..	Olli.....	19	26	74	5.7	6.3	44	2 Fd.	..
No significant yield difference between varieties owing to unusual yield fluctuations within the test.												
JOHN JOE KOT, McTAGGART												
2A	1	8	C	Regal.....	28	23	81	8	8	50	3 C.W. 6 row	..
..	Newal.....	27	27	81	8	8	50	3 C.W. 6 row	..
..	Rex.....	31	24	81	8	8	52	2 C.W. 2 row	..
..	Push.....	35	23	81	8	8	49	3 C.W. 6 row	..
..	OAC 21.....	25	23	81	8	8	48	2 C.W. 6 row	T.I.
..	Olli.....	6	25	64	9	9	48	2 C.W. 6 row	..
Necessary difference—8.1 bushels.												
CLARENCE ANDREW HOOKANSEN, KISBEY												
2A	1	9	A	Regal.....	..	14	..	10	10	..	..	..
..	Newal.....	..	12	..	10	10	..	..	..
..	Rex.....	..	14	..	10	10	..	..	..
..	Push.....	..	14	..	10	10	..	..	..
..	OAC 21.....	..	14	..	10	10	..	..	..
..	Olli.....	..	14	..	10	10	..	..	..
No samples received—destroyed by grasshoppers.												
EDWARD JOSEPH BAKER, ESTLIN												
2A	6	3	C	Regal.....	..	37	..	10	10	..	..	..
..	Newal.....	..	37	..	9	4.3	..	..	..
..	Rex.....	..	36	..	8.7	3.6	..	..	..
..	Push.....	..	36	..	9.3	9.3	..	..	..
..	OAC 21.....	..	38	..	9.7	3	..	..	..
..	Olli.....	..	32	..	9	10	..	..	..
No samples received—destroyed by grasshoppers.												
CLAUDE AMBROSE DOBSON, ROULEAU												
2A	6	6	A	Regal.....	..	11	..	10	10	52	3 C.W. 6 row	..
..	Newal.....	..	18	..	10	10	51	3 C.W. 6 row	..
..	Rex.....	..	20	..	10	10	53	2 C.W. 2 row	..
..	Push.....	..	36	..	10	10	51	3 C.W. 6 row	..
..	OAC 21.....	..	12	..	10	10	52	2 C.W. 6 row	..
..	Olli.....	..	3	..	10	10	*	E. 3 C.W. 6 row	..
Necessary difference—samples bulked.												

E.—Estimated

* Insufficient to weigh.

Cereal variety zone	Dist.	Sub-dist.	Test designation	Varieties	Yield bus. per acre	Plant height in inches	Days seed-ing to ripe	Straw strength	Neck strength	Pounds per measured bushel	Commer-cial grades	Grading remarks
DONALD ALLAN WOOD, INDIAN HEAD												
3A	6	8	A	Regal.....	54	36	86	10	....	50	3 C.W. 6 row	....
"	"	"	"	Newal.....	46	35	82	10	....	50	3 C.W. 6 row	....
"	"	"	"	Rex.....	47	37	88	10	....	52	2 C.W. 2 row	S.b.p.
"	"	"	"	Plush.....	61	35	88	10	....	50	3 C.W. 6 row	....
"	"	"	"	OAC 21.....	39	37	84	10	....	49	2 C.W. 6 row	....
"	"	"	"	Olli.....	35	32	77	10	....	48	3 C.W. 6 row	T.I.
Necessary difference—8.8 bushels.												

Tests Discarded on Account of Severe Damage by Drought, Pests, Hail, or Other Causes.
6 1 A Charles Vernon Leach, Colfax.

WHEAT POOL DISTRICT 7

LLOYD A. GRIFFIN, MOOSOMIN												
3A	7	2	A	Regal.....	14	....	....	....	....	48	1 Fd.	10% Pl.
"	"	"	"	Newal.....	16	....	....	....	....	49	3 C.W. 6 row	4% Pl.
"	"	"	"	Rex.....	14	....	....	....	....	50	2 C.W. 2 row	S.b.p.
"	"	"	"	Plush.....	20	....	....	....	....	48	1 Fd.	8% Pl.
"	"	"	"	OAC 21.....	9	....	....	....	....	*	E. 1 Fd.	6% Pl.
"	"	"	"	Olli.....	5	....	....	....	....	*	E. 3 C.W. 6 row	T.I.
Necessary difference—4.7 bushels.												

SAMUEL EDWARD ALLAN, CREELMAN												
2A	7	5	A	Regal.....	12	....	83	8.7	....	50	3 C.W. 6 row	....
"	"	"	"	Newal.....	15	....	79	9	....	48	3 C.W. 6 row	....
"	"	"	"	Rex.....	5	....	84	8	....	*	1 Fd.	B.p.
"	"	"	"	Plush.....	19	....	81	9	....	47	3 C.W. 6 row	S.b.p.
"	"	"	"	OAC 21.....	11	....	80	8.7	....	47	3 C.W. 6 row	T.I.
"	"	"	"	Olli.....	10	....	69	9	....	46	3 C.W. 6 row	T.I.
No significant yield difference between varieties owing to unusual yield fluctuations within the test.												

EMILE LOUIS JOSEPH LABRECHE, MONTMARTRE												
3A	7	6	A	Regal.....	....	....	8.7	9	....	....	....	....
"	"	"	"	Newal.....	....	....	8.7	7.7	....	*	E. 3 C.W. 6 row	....
"	"	"	"	Rex.....	....	....	8.7	8	....	*	E. 1 Fd.	....
"	"	"	"	Plush.....	20	....	8.7	8.3	....	50	3 C.W. 6 row	....
"	"	"	"	OAC 21.....	....	....	8.3	8.3	....	....	....	....
"	"	"	"	Olli.....	17	....	7.7	7.7	....	47	3 C.W. 6 row	T.I.
Other varieties severely damaged by grasshoppers and yields discarded.												

CHARLES WILLIAMSON, BEAR CREEK												
3A	7	8	A	Regal.....	32	....	....	8.7	8.6	48	3 C.W. 6 row	B.p.
"	"	"	"	Newal.....	40	....	....	8.7	8.3	52	3 C.W. 6 row	....
"	"	"	"	Rex.....	27	....	....	9	8.6	50	1 Fd.	M.
"	"	"	"	Plush.....	43	....	....	8.7	8.6	49	3 C.W. 6 row	S.b.p.
"	"	"	"	OAC 21.....	33	....	....	8.3	8.3	52	2 C.W. 6 row	5% Pl.
"	"	"	"	Olli.....	18	....	....	8.7	8.3	49	2 C.W. 6 row	....
Necessary difference—6.3 bushels.												

WHEAT POOL DISTRICT 8

DOUGLAS DAVID WOTHERSPOON, R.R. No. 1, MELVILLE												
3C	8	3	C	Regal.....	54	36	91	9	7	53	1 Fd.	B.p. Pl.
"	"	"	"	Newal.....	55	36	91	9	7	53	1 Fd.	B.p.
"	"	"	"	Rex.....	49	36	91	9	7	54	1 Fd.	B.p.M.
"	"	"	"	Plush.....	64	36	89	9	7	53	1 Fd.	B.p.
"	"	"	"	OAC 21.....	46	36	91	9	7	53	1 Fd.	9% Pl.
"	"	"	"	Olli.....	45	36	88	9	7	51	3 C.W. 6 row	T.G.
Necessary difference—7.1 bushels.												

PETE TOMLIN, VEREGIN												
3B	8	5	B	Regal.....	37	23	79	9.3	10	52	1 Fd.	12% Pl.
"	"	"	"	Newal.....	45	22	80	10	9.6	52	3 C.W. 6 row	4.5% Pl.
"	"	"	"	Rex.....	42	25	79	10	10	55	2 C.W. 2 row	S.b.p.
"	"	"	"	Plush.....	59	23	79	10	9.6	53	3 C.W. 6 row	S.b.p.
"	"	"	"	OAC 21.....	29	23	79	10	9.3	52	1 Fd.	7% Pl.
"	"	"	"	Olli.....	30	21	75	9	7	50	3 C.W. 6 row	T.G.
Necessary difference—10.2 bushels.												

NORMAN ROSS TURNER, INVERMAY												
3C	8	7	A	Regal.....	60	32	....	10	10	51	3 C.W. 6 row	....
"	"	"	"	Newal.....	64	35	....	10	10	52	3 C.W. 6 row	....
"	"	"	"	Rex.....	55	35	....	10	10	52	1 Fd.	G. B.p.
"	"	"	"	Plush.....	67	32	....	10	10	51	3 C.W. 6 row	S. B.p.
"	"	"	"	OAC 21.....	66	34	....	10	9	52	2 C.W. 6 row	....
"	"	"	"	Olli.....	46	34	....	10	9.3	50	2 C.W. 6 row	....
No significant yield difference between varieties owing to unusual yield fluctuations within the test.												

E.—Estimated.

* Insufficient to weigh.

Cereal variety zone	Dist.	Sub- dist.	Test desig- nation	Varieties	Yield bus. per acre	Plant height in inches	Days seed- ing to ripe	Straw strength	Neck strength	Pounds per measured bushel	Commer- cial grades	Grading remarks
FRANCIS W. BEBAULT, WEEKES												
4A	8	8	C	Regal.....	67	....	....	10	10	51	1 Fd.	10% Pl.
..	Newal.....	78	....	....	10	10	53	3 C.W. 6 row	....
..	Rex.....	55	....	....	10	10	54	2 C.W. 2 row	....
..	Plush.....	59	....	....	10	10	51	1 Fd.	10% Pl.
..	OAC 21.....	77	....	....	10	10	51	1 Fd.	11% Pl.
..	Olli.....	47	....	....	10	10	52	2 C.W. 6 row	Pl.

No significant yield difference between varieties owing to unusual yield fluctuations within the test.

STAN. NIMETZ, ARRAN												
3B	8	10	A	Regal.....	64	36	89	10	10	50	3 C.W. 6 row	....
..	..	..	..	Newal.....	74	32	89	10	7.6	50	3 C.W. 6 row	....
..	..	..	..	Rex.....	40	32	89	10	7	50	1 Fd.	F.
..	..	..	..	Plush.....	61	33	89	10	8	48	1 Fd.	F.
..	..	..	..	OAC 21.....	52	35	89	10	9	49	1 Fd.	....
..	..	..	..	Olli.....	36	30	84	10	6	50	2 C.W. 6 row	....

Necessary difference—13.1 bushels.

Tests Discarded on Account of Severe Damage by Drought, Pests, Hail, or Other Causes.

8	1	A	Jon Robert Eglisson, Calder	8	4	C	Oscar Irving Jechel, Beaverdale.
8	1	C	Williard John Ferdinand Kendal, MacNutt.				

WHEAT POOL DISTRICT 9

ROBERT IRVING GILL, JASMIN												
3C	9	1	A	Regal.....	38	26	....	9.7	9.6	49	1 Fd.	B.pl.
..	..	..	..	Newal.....	43	26	....	7.3	8	50	1 Fd.	9% Pl.
..	..	..	..	Rex.....	38	28	....	8	8	49	1 Fd.	T.G.F.
..	..	..	..	Plush.....	46	23	....	8.3	9	49	1 Fd.	B.pl.
..	..	..	..	OAC 21.....	28	27	....	9	8	49	1 Fd.	B.pl.
..	..	..	..	Olli.....	30	23	....	7.3	6	51	1 Fd.	6.5% Pl.

Necessary difference—6.6 bushels.

JOHN ORBAN, PUNNICHY												
3C	9	3	A	Regal.....	74	39	102	8.3	8.6	55	3 C.W. 6 row	....
..	..	..	..	Newal.....	81	36	102	7.3	8.6	52	3 C.W. 6 row	B.p.
..	..	..	..	Rex.....	60	40	100	8.7	9	53	1 Fd.	B.p.
..	..	..	..	Plush.....	79	37	102	8.3	8.3	53	3 C.W. 6 row	B.p.
..	..	..	..	OAC 21.....	78	44	100	8.3	8.6	55	2 C.W. 6 row	4% Pl.
..	..	..	..	Olli.....	71	33	95	9	8	54	3 C.W. 6 row	B.p.

No significant yield difference between varieties owing to unusual yield fluctuations within the test.

ROBERT MURDOCH GILCHRIST, FOAM LAKE												
3C	9	9	A	Regal.....	....	31	87	10	9.3	....	....	....
..	..	..	..	Newal.....	....	31	87	10	9.7	....	....	....
..	..	..	..	Rex.....	....	29	87	10	7.3	....	....	....
..	..	..	..	Plush.....	....	29	88	10	9.7	....	....	....
..	..	..	..	OAC 21.....	....	31	85	10	10	....	....	....
..	..	..	..	Olli.....	....	29	87	10	6.3	....	....	....

No samples received.

WHEAT POOL DISTRICT 13

HAROLD HEIDECKER, MIDDLE LAKE												
4A	13	10	A	Regal.....	56	37	105	9.0	....	51	1 Fd.	....
..	..	..	..	Newal.....	57	38	105	8.2	....	53	1 Fd.	7% Pl.
..	..	..	..	Rex.....	48	36	110	8.5	....	52	1 Fd.	G.B.p.
..	..	..	..	Plush.....	65	37	108	7.3	....	51	1 Fd.	....
..	..	..	..	OAC 21.....	57	39	103	6.3	....	52	1 Fd.	8% Pl.
..	..	..	..	Olli.....	34	33	101	7	....	52	3 C.W. 6 row	G.

No significant yield difference between varieties owing to unusual yield fluctuations within the test.

WHEAT POOL DISTRICT 14

STANLEY GIBB, LINTLAW												
4A	14	1	C	Regal.....	48	30	....	....	7.3	53	3 C.W. 6 row	....
..	..	..	..	Newal.....	49	30	....	....	5	53	3 C.W. 6 row	....
..	..	..	..	Rex.....	48	30	....	....	9	54	1 Fd.	B.p. M.
..	..	..	..	Plush.....	65	30	....	....	7.6	51	3 C.W. 6 row	....
..	..	..	..	OAC 21.....	44	30	....	....	6	52	2 C.W. 6 row	....
..	..	..	..	Olli.....	42	30	....	....	6.3	51.5	2 C.W. 6 row	5% Pl.

No significant yield difference between varieties owing to unusual yield fluctuations within the test.

ROY TJERNSTROM, MARGO												
3C	14	2	C	Regal.....	41	....	....	....	....	51	3 C.W. 6 row	....
..	..	..	..	Newal.....	43	....	....	....	....	52	3 C.W. 6 row	....
..	..	..	..	Rex.....	41	....	....	....	....	54	2 C.W. 2 row	....
..	..	..	..	Plush.....	47	....	....	....	....	50	3 C.W. 6 row	....
..	..	..	..	OAC 21.....	33	....	....	....	....	52	1 Fd.	7% Pl.
..	..	..	..	Olli.....	....	....	....	....	....	*	E. 1 Fd.	12% Pl.

Olli badly damaged—yields discarded.

E.—Estimated.

* Insufficient to weigh.

Cereal variety zone	Dist.	Sub- dist.	Test desig- nation	Varieties	Yield bus. per acre	Plant height in inches	Days seed- ing to ripe	Straw strength	Neck strength	Pounds per measured bushel	Commer- cial grades	Grading remarks
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ARTHUR WILLIAM JONES, QUILL LAKE

3C	14	3	C	Regal.....	28	24	8	8	50	3 C.W. 6 row	5% Pl.
..	Newal.....	26	24	9.7	8	51	3 C.W. 6 row
..	..	..	..	Rex.....	25	24	....	9	9	54	2 C.W. 2 row	....
..	..	..	..	Plush.....	31	24	....	8.3	8	50	3 C.W. 6 row	5% Pl.
..	..	..	..	OAC 21.....	21	24	....	8.3	9	51	2 C.W. 6 row	4% Pl.
..	..	..	..	Olli.....	27	24	....	9	8	51	3 C.W. 6 row	T.G.

No significant yield difference between varieties owing to unusual yield fluctuations within the test.

DENIS EWALD WORMS, LAKE LENORE

3C	14	4	C	Regal.....	65	35	96	7.7	9	51	1 Fd.	7% Pl.
..	..	..	..	Newal.....	66	37	95	9.7	9.6	53	3 C.W. 6 row	....
..	..	..	..	Rex.....	54	38	99	3.7	10	54	2 C.W. 2 row	....
..	..	..	..	Plush.....	71	34	95	4.3	8	49	3 C.W. 6 row	....
..	..	..	..	OAC 21.....	58	35	96	8.7	7.6	50	2 C.W. 6 row	....
..	..	..	..	Olli.....	42	35	95	5.3	8	50	2 C.W. 6 row	T.I.

Necessary difference—9.2 bushels.

CLAYTON ALBERT ANGELL, MERLE

4A	14	6	A	Regal.....	66	40	98	7.7	7	52	3 C.W. 6 row	....
..	..	..	..	Newal.....	72	37	98	5.3	4.3	51	3 C.W. 6 row	....
..	..	..	..	Rex.....	56	36	98	6.7	8.3	54	2 C.W. 2 row	....
..	..	..	..	Plush.....	88	38	98	4.3	6.3	53	3 C.W. 6 row	....
..	..	..	..	OAC 21.....	45	40	98	....	2	50	2 C.W. 6 row	....
..	..	..	..	Olli.....	59	39	88	8.3	6.6	50	2 C.W. 6 row	....

Necessary difference—18.1 bushels.

MERVEN CLIFFORD GROAT, ETHELTON

3D	14	7	A	Regal.....	....	42	99	7	8	....	....	....
..	..	..	..	Newal.....	....	36	99	7.7	6.3	....	....	....
..	..	..	..	Rex.....	....	36	99	7	6.7	....	....	....
..	..	..	..	Plush.....	....	35	99	7.3	7.7	....	....	....
..	..	..	..	OAC 21.....	....	41	99	6.7	7	....	....	....
..	..	..	..	Olli.....	....	31	99	6.7	6.7	....	....	....

No samples received.

EVAN HULLEY, CODETTE

3D	14	10	A	Regal.....	59	32	93	8	7.6	54	3 C.W. 6 row	....
..	..	..	..	Newal.....	73	35	91	8.7	7	53	3 C.W. 6 row	....
..	..	..	..	Rex.....	62	35	94	8	6	55	2 C.W. 2 row	4% Pl.
..	..	..	..	Plush.....	65	35	91	7.7	6.6	51	3 C.W. 6 row	....
..	..	..	..	OAC 21.....	63	34	90	7.7	6.3	53	2 C.W. 6 row	....
..	..	..	..	Olli.....	59	29	92	7.3	5	49	2 C.W. 6 row	S l.

No significant yield difference between varieties owing to unusual yield fluctuations within the test.

WHEAT POOL DISTRICT 15

DONALD CLIFFORD BROWN, CRYSTAL SPRINGS

4A	15	1	A	Regal.....	59	....	85	10	10	55	3 C.W. 6 row	....
..	..	..	..	Newal.....	65	....	81	10	8	54	3 C.W. 6 row	....
..	..	..	..	Rex.....	56	....	81	9	8	58	2 C.W. 2 row	....
..	..	..	..	Plush.....	65	....	83	10	8	53	3 C.W. 6 row	....
..	..	..	..	OAC 21.....	63	....	78	7	5	56	2 C.W. 6 row	....
..	..	..	..	Olli.....	49	....	78	10	9	54	2 C.W. 6 row	....

No significant yield difference between varieties owing to unusual yield fluctuations within the test.

WALTER LEE KRUEGER, DUCK LAKE

3E	15	3	A	Regal.....	40	35	95	10	8.6	51	3 C.W. 6 row	....
..	..	..	..	Newal.....	45	38	90	10	9	50	3 C.W. 6 row	S.b.p.
..	..	..	..	Rex.....	33	35	95	10	10	53	2 C.W. 2 row	....
..	..	..	..	Plush.....	43	36	90	10	9	52	3 C.W. 6 row	B.p.
..	..	..	..	OAC 21.....	42	38	89	9	8.3	52	2 C.W. 6 row	4% Pl.
..	..	..	..	Olli.....	43	36	83	9	8.6	52	2 C.W. 6 row	....

No significant yield difference between varieties.

LEONEL BONTHOUS, CARLTON

3E	15	4	A	Regal.....	43	45	85	....	....	54	3 C.W. 6 row	....
..	..	..	..	Newal.....	43	45	78	....	....	55	3 C.W. 6 row	....
..	..	..	..	Rex.....	40	46	87	....	....	57	2 C.W. 2 row	....
..	..	..	..	Plush.....	55	40	80	....	....	54	3 C.W. 6 row	....
..	..	..	..	OAC 21.....	37	45	88	....	....	54	2 C.W. 6 row	5% Pl.
..	..	..	..	Olli.....	20	45	74	....	....	55	1 Feed	11% Pl.

Necessary difference—8.1 bushels.

ALBERT EDWARD PUGH, WILD ROSE

3E	15	8	A	Regal.....	48	35	....	10	10	52	3 C.W. 6 row	....
..	..	..	..	Newal.....	56	34	....	10	10	52	3 C.W. 6 row	....
..	..	..	..	Rex.....	48	34	....	10	10	53	1 Fd.	M.
..	..	..	..	Plush.....	56	35	....	9	10	49	3 C.W. 6 row	....
..	..	..	..	OAC 21.....	42	34	....	9	10	51	2 C.W. 6 row	....
..	..	..	..	Olli.....	36	29	....	9	9	50	2 C.W. 6 row	....

Necessary difference—9.0 bushels.

Cereal variety zone	Dist.	Sub- dist.	Test desig- nation	Varieties	Yield bus. per acre	Plant height in inches	Days seed- ing to ripe	Straw strength	Neck strength	Pounds per measured bushel	Commer- cial grades	Grading remarks
JOHN FRED HAUGEN, SPRUCE HOME												
3E	15	9	A	Regal.....	33	93	9	7.3	.....	.....	.....	.....
"	"	"	"	Newal.....	33	94	10	7.7	.....	.....	.....	.....
"	"	"	"	Rex.....	34	94	9.3	9.7	.....	.....	.....	.....
"	"	"	"	Plush.....	33	94	10	9	.....	.....	.....	.....
"	"	"	"	OAC 21.....	30	94	10	7.7	.....	.....	.....	.....
"	"	"	"	Olli.....	28	92	8.7	9	.....	.....	.....	.....

No samples received—destroyed by birds.

Tests Discarded on Account of Severe Damage by Drought, Hail, Pests, or Other Causes.

15 7 A Alden I. Anderson, Canwood.

15 10 A Sven Larson, Kinistino.

WHEAT POOL DISTRICT 16

LAWRENCE ERNEST McKELLAR, RADISSON												
3E	16	1	A	Regal.....	67	38	85	54	1 Feed	27% Pl.	.....	.....
"	"	"	"	Newal.....	57	38	85	53	3 C.W. 6 row	.....	.....	.....
"	"	"	"	Rex.....	65	38	85	56	1 Feed	.....	.....	.....
"	"	"	"	Plush.....	71	37	85	52	1 Feed	Pl.	.....	.....
"	"	"	"	OAC 21.....	45	39	83	52	2 C.W. 6 row	8% Pl.	.....	.....
"	"	"	"	Olli.....	67	32	83	54	2 C.W. 6 row	4% Pl.	.....	.....

Necessary difference—yields bulked.

EDWARD PHILIP HUDEK, HAFORD												
3E	16	2	A	Regal.....	31	26	90	10	9.7	51	3 C.W. 6 row	.....
"	"	"	"	Newal.....	22	25	88	10	8.2	50	3 C.W. 6 row	.....
"	"	"	"	Rex.....	41	25	89	10	9	52	1 Feed	.....
"	"	"	"	Plush.....	31	25	88	10	8.8	49	3 C.W. 6 row	.....
"	"	"	"	OAC 21.....	34	26	92	10	9.7	51	3 C.W. 6 row	.....
"	"	"	"	Olli.....	19	26	89	10	8	51	3 C.W. 6 row	.....

Necessary difference—6.3 bushels.

ROBERT OWEN JORDAN, BAPAUME												
4B	16	10	A	Regal.....	30	28	92	10	8.3	53	3 C.W. 6 row	.....
"	"	"	"	Newal.....	28	28	91	9.7	4.3	53	3 C.W. 6 row	5% Pl.
"	"	"	"	Rex.....	31	28	91	9	8.6	54	2 C.W. 2 row	.....
"	"	"	"	Plush.....	34	27	94	9.7	8.3	50	3 C.W. 6 row	.....
"	"	"	"	OAC 21.....	32	28	90	9.7	5.6	52	2 C.W. 6 row	4% Pl.
"	"	"	"	Olli.....	.....	.....	.....	.....	.....	.....	.....	.....

No samples of Olli received—yields bulked.

ABRAHAM A. STOBBE, MULLINGAR												
3E	16	10	D	Regal.....	34	26	.....	.....	.....	52	3 C.W. 6 row	.....
"	"	"	"	Newal.....	33	28	.....	.....	.....	50	3 C.W. 6 row	B.p.
"	"	"	"	Rex.....	33	29	.....	.....	.....	54	1 Fd.	5% Pl.
"	"	"	"	Plush.....	34	26	.....	.....	.....	49	1 Fd.	11% Pl.
"	"	"	"	OAC 21.....	30	21	.....	.....	.....	51	3 C.W. 6 row	.....
"	"	"	"	Olli.....	36	27	.....	.....	.....	52	1 Fd.	.....

No significant yield difference between varieties.

FLAX

NAMES AND ORIGIN OF VARIETIES USED IN THE TEST

Bison.—Bison is a highly wilt resistant variety developed by selection at the North Dakota Agricultural College. It has blue blossoms and fairly large brown seeds of high oil content but only fair oil quality.

Redwing.—Redwing is a highly wilt resistant variety produced by hybridization at the Minnesota College of Agriculture. It has blue blossoms and small brown seeds.

Royal.—Royal is a highly wilt resistant variety selected at the University of Saskatchewan from the susceptible variety Crown. It has blue blossoms and mid-sized brown seeds. Compared to Bison it is higher in oil quality and slightly lower in oil yield.

YIELD

Table No. 46 shows the average yield in bushels per acre summarized in the different areas. In the combined Zones 1A and 1B five tests were available for yield analysis. One of these tests was located in the western part of Zone 1A and the others in the northwestern area of Zone 1B. The combined results of these tests show that although Royal outyielded Bison by .8 bushel, and Redwing by 1.2 bushels, neither of these differences are significant. In the combined Zones 2A and 2B, nineteen tests were available, most of which were located in Zone 2B. In these zones Royal outyielded Bison and Redwing by significant differences. Only one test was available in Zone 3B and the results cannot be applied to the whole area. In Zones 3D and 3E, ten tests were available for analysis. In these combined zones Redwing outyielded both Royal and Bison by differences which are significant, but no difference of a significant nature appeared between the yields of Royal and Bison.

TABLE No. 46.—AVERAGE YIELD IN BUSHELS PER ACRE SUMMARIZED IN CEREAL VARIETY ZONES.

Zone	No. of Satisfactory Tests	Bison	Royal	Redwing	Necessary Difference in Bushels
1A & 1B	5	10.8	11.6	10.4	1.3
2A & 2B	19	12.4	14.6	12.3	.6
3D & 3E	10	12.3	12.6	14.6	.9

DAYS FROM SOWING TO RIPENING

Table No. 47 shows the number of days required by each variety from sowing to ripening. From this table it will be observed that Redwing exceeded the other varieties in "earliness," in all zones, while Bison consistently ripened earlier than Royal. A general average of all tests shows that Redwing required 101.9 days to reach maturity, ripening 4 days earlier than Bison and 4.9 days earlier than Royal.

TABLE No. 47.—AVERAGE NUMBER OF DAYS FROM SOWING TO RIPENING SUMMARIZED IN CEREAL VARIETY ZONES.

Cereal Variety Zone	Bison	Royal	Redwing
1A & 1B	102	102.2	99.8
2A & 2B	105.3	105.8	102.3
3D & 3E	108.6	110.8	101.5

PLANT HEIGHT

Table No. 48 shows the average height of each variety in the different areas. In the combined Zones 3D and 3E, Royal either equalled or exceeded Bison in height, but in other zones where sufficient data are available, Bison was the tallest variety. Royal exceeded Redwing in height in all zones. Taking the tests as a whole, Bison averaged 22.5 inches, being .2 inch taller than Royal, and 1.3 inches taller than Redwing.

TABLE No. 48.—AVERAGE PLANT HEIGHT IN INCHES SUMMARIZED IN CEREAL VARIETY ZONES.

Cereal Variety Zone	Bison	Royal	Redwing
1A & 1B.....	22.5	21.8	20.6
2A & 2B.....	21.3	21.0	20.0
3D & 3E.....	25.1	25.1	24.1

BUSHEL WEIGHT

Table No. 49 shows the average weight per measured bushel arranged in the different areas. Redwing excelled in bushel weight in all zones. In Zone 3B, where only one test was available for analysis, Bison outweighed the Royal variety by 1.5 lbs., but in all other zones Royal exceeded Bison in weight. Taking the tests as a whole, Redwing averaged 55.6 lbs. per bushel, outweighing Royal and Bison by 1.2 lb. and 1.9 lb. respectively.

TABLE No. 49.—WEIGHT PER MEASURED BUSHEL (CLEANED) SUMMARIZED BY CEREAL VARIETY ZONES

Cereal Variety Zone	Bison	Royal	Redwing
1A & 1B.....	53.4	54.0	55.0
2A & 2B.....	53.8	54.4	55.6
3D & 3E.....	53.6	54.7	55.9

COMMERCIAL GRADES

With the exception of two tests, all samples graded 1 C.W. Damaged kernels resulted in all varieties grading 2 C.W. in one test, and in another test, the Bison and Royal varieties showed damaged kernels, and graded 2 C.W. while Redwing showed no defects and graded 1 C.W.

SUMMARIZATION ACCORDING TO CEREAL VARIETY ZONES ZONES 1A and 1B (Combined Results)

Yield.—While Royal was the highest yielder, no significant differences appear between the yields of any of the varieties. **"Earliness."**—Redwing excelled, ripening 2.2 days earlier than Bison, and 2.4 days earlier than Royal. **Height.**—Bison exceeded Royal and Redwing by differences of .7 inch and 1.9 inches respectively. **Weight.**—Redwing excelled, exceeding Royal by 1 lb., and Bison by 1.6 lbs. **Grades.**—All varieties graded 80% 1 C.W., and 20% 2 C.W. **General Results.**—While Royal led in yield, the differences between any of the varieties were not of a significant nature. Royal was somewhat taller than Redwing, but the latter variety excelled in earliness and bushel weight. Bison showed no outstanding characteristic and the results of this test would indicate that the performances of Royal and Redwing are slightly better than the performance of Bison.

TABLE No. 50.—SUMMARIZED RESULTS FOR CEREAL VARIETY ZONES 1A AND 1B.

	Bison	Royal	Redwing
Yield in bushels per acre.....	10.8	11.6	10.4
Days from seeding to ripening.....	102.0	102.2	99.8
Height of plant in inches.....	22.5	21.8	20.6
Bushel weight in pounds.....	53.4	54.0	55.0
Commercial grades in percentage—1 C.W.....	80.0	80.0	80.0
2 C.W.....	20.0	20.0	20.0

Necessary difference—1.3 bushels.

CEREAL VARIETY ZONES 2A and 2B (Combined Results)

Yield.—Royal excelled in yield, outyielding Bison and Redwing by significant differences. Bison exceeded Redwing by a difference of only .1

bushel. **"Earliness."**—Redwing ripened earlier than Bison and Royal by differences of 3 days and 3.5 days respectively. **Height.**—Bison was only .3 inch taller than Royal but exceeded Redwing by a difference of 1.3 inches. **Weight.**—Redwing outweighed Bison by a difference of 1.8 lbs. and exceeded Royal by 1.2 lbs. **Grades.**—All varieties graded 1 C.W. **General Results.**—Royal appears to have made the best showing in these combined zones. In this area "earliness" is not such an important factor as in the northern zones, and while Royal is somewhat later than Redwing and slightly later than Bison, the differences are not of a marked nature.

TABLE No. 51.—SUMMARIZED RESULTS FOR CEREAL VARIETY ZONES 2A AND 2B.

	Bison	Royal	Redwing
Yield in bushels per acre.....	12.4	14.6	12.3
Days from sowing to ripening.....	105.3	105.8	102.3
Height of plant in inches.....	21.3	21.0	20.0
Bushel weight in pounds.....	53.8	54.4	55.6
Commercial grades in percentage—1 C.W.....	100.0	100.0	100.0

Necessary difference—.6 bushel.

CEREAL VARIETY ZONE 3B

Only one test reached maturity in this zone. This test was conducted by Martin Grywachski of Norquay. No analysis on a zonation basis is possible but the results of the test appear on Page No. 96.

CEREAL VARIETY ZONES 3D and 3E

(Combined Results)

Yield.—It will be observed that Redwing outyielded the other varieties by differences which are significant. Although Royal exceeded Bison, the difference is not of a significant nature. **"Earliness."**—Redwing also excelled, ripening earlier than Royal and Bison by differences of 9.3 days and 7.1 days respectively. **Height.**—Bison and Royal tied, being 1 inch taller than the Redwing variety. **Weight.**—Redwing excelled, outweighing Royal by a difference of 1.2 lbs.; and exceeding Bison by a difference of 1.9 lbs. **Grades.**—All varieties in all tests graded 1 C.W. **General Results.**—The outstanding yield of Redwing, its comparative "earliness" (which in this northern zone is of paramount importance) and its superiority in bushel weight place this variety far ahead of the other varieties. While the results of one year's test are of course inconclusive, the performance of Redwing would suggest that it is the best variety for use in this area.

TABLE No. 52.—SUMMARIZED RESULTS FOR CEREAL VARIETY ZONES 3D AND 3E.

	Bison	Royal	Redwing
Yield in bushels per acre.....	12.3	12.6	14.6
Days from sowing to ripening.....	108.6	110.8	101.5
Height of plant in inches.....	25.1	25.1	24.1
Bushel weight in pounds.....	53.6	54.7	55.9
Commercial grades in percentage—1 C.W.....	100.0	100.0	100.0

Necessary difference—.9 bushel.



TABLE No. 53

Individual Summarized Results of All Tests—FLAX**WHEAT POOL DISTRICT 1**

Cereal variety zone	Dist.	Sub-dist.	Test designation	Varieties	Yield bus. per acre	Plant height in inches	Days seed-ing to ripe	Damage by wilt in percentage	Pounds per measured bushel	Commer-cial grades	Grading remarks
EDWARD ROSS CAMERON, STOUGHTON											
2A	1	9	C	Bison.....	9	18	92	....	54	1 C.W.	....
..	..	..	..	Royal.....	6	18	84	....	54.5	1 C.W.	....
..	..	..	..	Redwing.....	11	19	90	....	56	1 C.W.	....
Necessary difference—1.3 bushels.											

WHEAT POOL DISTRICT 2

HARVEY LOUIS GRAY, CEYLON											
2A	2	2	C	Bison.....	17	28	....	....	52	2 C.W.	Dgd.
..	..	..	..	Royal.....	22	28	....	....	53	2 C.W.	Dgd.
..	..	..	..	Redwing.....	16	26	....	....	53	2 C.W.	Dgd.
Necessary difference—3.5 bushels.											

WHEAT POOL DISTRICT 6

DONALD WALLACE STEER, YELLOW GRASS											
2A	6	1	C	Bison.....	9	....	93	....	54	1 C.W.	....
..	..	..	..	Royal.....	11	....	93	....	54.5	1 C.W.	....
..	..	..	..	Redwing.....	6	....	87	....	55.5	1 C.W.	....
Necessary difference—1.4 bushels.											

JOHN EDGAR O'BYRNE, LEWVAN											
2A	6	1	D	Bison.....	5	....	72	....	50	1 C.W.	....
..	..	..	..	Royal.....	7	....	72	....	52.5	1 C.W.	....
..	..	..	..	Redwing.....	5	....	72	....	54	1 C.W.	....
Necessary difference—samples bulked.											

Tests Discarded on Account of Severe Damage by Drought, Pests, Hail, or Other Causes.
6 10 A Frederick Frank Headford, Kestleston.

WHEAT POOL DISTRICT 8

MARTIN S. GRYWACHESKI, NORQUAY											
3B	8	9	A	Bison.....	15	26	108	....	54	2 C.W.	Dgd.
..	..	..	..	Royal.....	9	27	109	....	52.5	2 C.W.	Dgd.
..	..	..	..	Redwing.....	17	25	106	....	56	1 C.W.	....
Necessary difference—2.9 bushels.											

WHEAT POOL DISTRICT 9

HAROLD WILFRED MORTON, GIBBS											
2B	9	4	A	Bison.....	11	21	98	....	54.5	1 C.W.	....
..	..	..	..	Royal.....	11	20	101	....	54	1 C.W.	....
..	..	..	..	Redwing.....	11	21	90	....	56	1 C.W.	....
No significant yield difference between varieties.											

ROBERT JOHN CARDIFF, GOVAN											
2B	9	5	A	Bison.....	25	23	108	....	54	1 C.W.	....
..	..	..	..	Royal.....	30	23	104	....	55	1 C.W.	....
..	..	..	..	Redwing.....	28	21	100	....	56	1 C.W.	....
Necessary difference—2.9 bushels.											

WILLIAM ROBERT POPE, DRAKE											
2B	9	6	A	Bison.....	8	22	112	....	53	1 C.W.	....
..	..	..	..	Royal.....	10	21	117	....	54	1 C.W.	....
..	..	..	..	Redwing.....	9	21	112	....	55.5	1 C.W.	....
No significant yield difference between varieties.											

WHEAT POOL DISTRICT 10

DANIEL MILL ZERR, HOLDFAST											
2B	10	1	A	Bison.....	8	19	92	1.8	55	1 C.W.	....
..	..	..	..	Royal.....	9	18	92	1.5	55	1 C.W.	....
..	..	..	..	Redwing.....	8	18	92	1.5	56.5	1 C.W.	....
No significant yield difference between varieties.											

Cereal variety zone	Dist.	Sub-dist.	Test designation	Varieties	Yield bus. per acre	Plant height in inches	Days seed-ing to ripe	Damage by wilt in percentage	Pounds per measured bushel	Commer-cial grades	Grading remarks
ORVAL DOUGLAS FISHER, BIRSAY											
1B	10	5	A	Bison.....	4	15	111	....	55	1 C.W.	....
"	"	"	"	Royal.....	3	14	110	....	55	1 C.W.	....
"	"	"	"	Redwing.....	2	15	110	....	56	1 C.W.	....

No significant yield difference between varieties.

GERHARD ARENT NELSON, ELBOW											
2B	10	6	A	Bison.....	6	19	93	....	54.5	1 C.W.	....
"	"	"	"	Royal.....	8	18	89	....	55	1 C.W.	....
"	"	"	"	Redwing.....	6	16	82	....	56.5	1 C.W.	....

No significant yield difference between varieties.

GRAHAM DONALDSON, DAVIDSON											
2B	10	7	A	Bison.....	7	21	104	....	54	1 C.W.	....
"	"	"	"	Royal.....	12	22	102	....	54.5	1 C.W.	....
"	"	"	"	Redwing.....	7	20	101	....	56	1 C.W.	....

Necessary difference—1.3 bushels.

JOHN STANLEY STRATTON, IMPERIAL											
2B	10	8	A	Bison.....	6	15	99	....	53.5	1 C.W.	....
"	"	"	"	Royal.....	6	15	99	....	54	1 C.W.	....
"	"	"	"	Redwing.....	7	15	99	....	55	1 C.W.	....

No significant yield difference between varieties.

THOMAS ANDREW MURISON, TESSIER											
2B	10	10	A	Bison.....	11	24	103	1.8	53.5	1 C.W.	....
"	"	"	"	Royal.....	11	24	104	1.5	55	1 C.W.	....
"	"	"	"	Redwing.....	9	24	103	2.2	54.5	1 C.W.	....

No significant yield difference between varieties.

Test Discarded on Account of Severe Damage by Drought, Hail, Pests, or Other Causes.
10 9 A Mervin Kenneth Holder, Bladworth.

WHEAT POOL DISTRICT 11

JOHN ARTHUR WELLBELOVE, ESTON											
1B	11	3	C	Bison.....	6	24	84	....	53.5	1 C.W.	....
"	"	"	"	Royal.....	4	23	86	....	53	1 C.W.	....
"	"	"	"	Redwing.....	4	23	82	....	55	1 C.W.	....

No significant yield difference between varieties.

JOHN ELVIN DAHL, MANTARIO											
1B	11	4	C	Bison.....	15	24	107	.6	52.5	1 C.W.	....
"	"	"	"	Royal.....	13	24	107	....	54	1 C.W.	....
"	"	"	"	Redwing.....	15	22	107	....	55.5	1 C.W.	....

No significant yield difference between varieties.

JACK RUSSELL HUCKSTEP, ROSETOWN											
2B	11	7	C	Bison.....	8	20	112	....	53.5	1 C.W.	....
"	"	"	"	Royal.....	12	19	112	....	54	1 C.W.	....
"	"	"	"	Redwing.....	7	20	112	....	55.5	1 C.W.	....

No significant yield difference between varieties owing to unusual yield fluctuations within the test.

HAROLD JACK BARCLAY, DRIVER											
1B	11	9	C	Bison.....	12	24	....	....	54	1 C.W.	....
"	"	"	"	Royal.....	16	23	....	....	55	1 C.W.	....
"	"	"	"	Redwing.....	15	21	....	....	55.5	1 C.W.	....

No significant yield difference between varieties.

JOHN ALBERT REID, DEWAR LAKE											
1B	11	10	C	Bison.....	....	20	106	....	....	....	....
"	"	"	"	Royal.....	....	19	106	....	....	....	....
"	"	"	"	Redwing.....	....	17	100	....	....	....	....

No yields received.

Tests Discarded on Account of Severe Damage by Drought, Pests, Hail, or Other Causes.
 • 11 1 C Thomas Alexander Banks, Kyle. 11 6 C Victor Thomas Bourne, Netherhill
 11 2 C Kenneth John Kutz, Elrose. 11 8 C Peter G. Sawatzky, Herschel.
 11 5 C Allan Morgan Baker, Craiglands.

WHEAT POOL DISTRICT 13

JOHN WILLIAM LEES, R.R. No. 1, CARMEL											
2B	13	1	A	Bison.....	14	24	....	....	53.5	1 C.W.	....
"	"	"	"	Royal.....	20	25	....	....	54	1 C.W.	....
"	"	"	"	Redwing.....	17	23	....	....	56	1 C.W.	....

Necessary difference—3.5 bushels.

Cereal variety zone	Dist.	Sub- dist.	Test desig- nation	Varieties	Yield bus. per acre	Plant height in inches	Days seed- ing to ripe	Damage by wilt in percentage	Pounds per measured bushel	Commer- cial grades	Grading remarks
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MARVIN SCHROEDER, GUERNSEY

2B	13	1	C	Bison.....	15	21	117	53	1 C.W.
..	Royal.....	17	21	123	53.5	1 C.W.
..	..	..	..	Redwing.....	16	21	125	....	55	1 C.W.	....

No significant yield difference between varieties.

NORMAN WOIDEN, YOUNG

2B	13	2	A	Bison.....	17	22	108	....	53.5	1 C.W.	....
..	..	..	..	Royal.....	16	21	112	....	53.5	1 C.W.	....
..	..	..	..	Redwing.....	13	19	104	....	55.5	1 C.W.	....

No significant yield difference between varieties owing to unusual yield fluctuations within the test.

GEORGE JOHN SCHMIDT, ALLEN

2B	13	3	A	Bison.....	11	22	98	....	53.5	1 C.W.	....
..	..	..	..	Royal.....	11	21	98	....	54.5	1 C.W.	....
..	..	..	..	Redwing.....	8	19	96	....	56	1 C.W.	....

Necessary difference—2.0 bushels.

RONALD SUTHERLAND, R.R. No. 3, SASKATOON

2B	13	4	A	Bison.....	28	27	115	....	54	1 C.W.	....
..	..	..	..	Royal.....	32	29	115	....	54	1 C.W.	....
..	..	..	..	Redwing.....	32	26	111	....	56	1 C.W.	....

Necessary difference—3.2 bushels.

HERBERT JOHN PORTER, FEUDAL

2B	13	6	A	Bison.....	22	26	127	....	54	1 C.W.	....
..	..	..	..	Royal.....	23	24	124	....	54	1 C.W.	....
..	..	..	..	Redwing.....	20	22	129	....	55	1 C.W.	....

No significant yield difference between varieties.

JACOB D. HEIN, OSLER

2B	13	7	A	Bison.....	8	17	113	....	54	1 C.W.	....
..	..	..	..	Royal.....	10	16	113	....	55	1 C.W.	....
..	..	..	..	Redwing.....	8	16	113	....	56	1 C.W.	....

Necessary difference—1.6 bushels.

J. E. BLAIN, PRUD'HOMME

2B	13	8	A	Bison.....	12	23	111	....	53	1 C.W.	....
..	..	..	..	Royal.....	17	23	115	....	54	1 C.W.	....
..	..	..	..	Redwing.....	15	21	93	....	56	1 C.W.	....

Necessary difference—2.4 bushels.

Tests Discarded on Account of Severe Damage by Drought, Pests, Hail, or Other Causes.
13 5 A Douglas Harold Crofford, Delisle.

WHEAT POOL DISTRICT 14

BYRON H. BULMER, WHITE FOX

3D	14	10	D	Bison.....	....	27	132	....	....	....	....
..	..	..	..	Royal.....	....	29	130	....	....	....	....
..	..	..	..	Redwing.....	....	28	129	....	....	....	....

No samples received.

WHEAT POOL DISTRICT 15

WILFRED LORNE ACORN, DAVIS

3E	15	2	A	Bison.....	7	....	81	....	54.5	1 C.W.	....
..	..	..	..	Royal.....	8	....	86	....	54.5	1 C.W.	....
..	..	..	..	Redwing.....	10	....	74	....	55.5	1 C.W.	....

No significant yield difference between varieties.

MISS VIOLA E. JUNG, MONT NEBO

3E	15	7	C	Bison.....	21	....	....	....	53.5	1 C.W.	....
..	..	..	..	Royal.....	20	....	....	....	56.5	1 C.W.	....
..	..	..	..	Redwing.....	25	....	....	....	55	1 C.W.	....

No significant yield difference between varieties owing to unusual yield fluctuations within the test.

WILBERT GELETTE, STURGEON VALLEY

3E	15	8	C	Bison.....	16	27	118	....	53.5	1 C.W.	....
..	..	..	..	Royal.....	17	27	131	....	54.5	1 C.W.	....
..	..	..	..	Redwing.....	17	26	106	....	56	1 C.W.	....

No significant yield difference between varieties.

Cereal variety zone	Dist.	Sub- dist.	Test desig- nation	Varieties	Yield bus. per acre	Plant height in inches	Days seed- ing to ripe	Damage by wilt in percentage	Pounds per measured bushel	Commer- cial grades	Grading remarks
LAWRENCE JOHN LEMOAL, WHITE STAR											
3E	15	9	C	Bison.....	19	25	118	....	55	1 C.W.	....
..	..	..	..	Royal.....	20	25	119	....	55	1 C.W.	....
..	..	..	..	Redwing.....	20	23	105	....	56.5	1 C.W.	....
No significant yield difference between varieties.											

WHEAT POOL DISTRICT 16

KENNETH W. WESSON, MAIDSTONE											
3E	16	5	A	Bison.....	7	24	105	....	55	1 C.W.	....
..	..	..	..	Royal.....	5	23	105	....	54	1 C.W.	....
..	..	..	..	Redwing.....	11	23	92	....	56.5	1 C.W.	....
Necessary difference—1.0 bushels.											

KENNETH P. SUTTON, MARSHALL											
3E	16	6	A	Bison.....	8	21	111	....	53.5	1 C.W.	....
..	..	..	..	Royal.....	10	24	111	....	55	1 C.W.	....
..	..	..	..	Redwing.....	12	20	104	....	56	1 C.W.	....
No significant yield difference between varieties.											

MISS DORIS K. BULLEN, FRENCHMAN BUTTE											
3E	16	7	C	Bison.....	5	24	114	....	53.5	1 C.W.	....
..	..	..	..	Royal.....	3	22	....	....	53.5	1 C.W.	....
..	..	..	..	Redwing.....	7	23	104	....	55.5	1 C.W.	....
Necessary difference—2.0 bushels.											

CAMERON OSBORNE PROCTOR, MERVIN											
3E	16	8	C	Bison..	17	25	105	....	53.5	1 C.W.	....
..	..	..	..	Royal.....	20	25	106	....	54.5	1 C.W.	....
..	..	..	..	Redwing.....	18	24	103	....	56	1 C.W.	....
No significant yield difference between varieties.											

LEO and EMIL LARSON, ROBINHOOD											
4B	16	9	C	Bison.....	10	26	99	1.6	53	1 C.W.	....
..	..	..	..	Royal.....	10	26	99	1.6	54.5	1 C.W.	....
..	..	..	..	Redwing.....	12	26	99	6.6	56	1 C.W.	....
No significant yield difference between varieties.											

ABRAHAM UNRAU, MULLINGAR											
3E	16	10	C	Bison.....	13	....	....	....	54	1 C.W.	....
..	..	..	..	Royal.....	13	....	....	....	55	1 C.W.	....
..	..	..	..	Redwing.....	15	....	....	....	56	1 C.W.	....
Necessary difference—1.5 bushels.											

CONCLUSIONS

Despite the fact that the number of tests which reached maturity in a few zones was insufficient to give adequate information, generally the 1940 testing project as described in the foregoing pages amply justified the work expended upon it.

The results of the wheat test supplied valuable data, supplementing that obtained in previous years. The tests with coarse grains included a number of new varieties. Coming at a time when the trend in Western Canada would appear to be directed towards a greater diversification in field crops, the detailed information in connection with the comparative performance of these new varieties, although applying to one year only, is of considerable importance.

Generally, this test and the testing projects which have been conducted by the Wheat Pool Organization each year during the period 1935 to 1940, have proved successful in several ways. They have demonstrated to the Junior Co-operatives the manner in which an accurate comparative test of varieties should be carried out. They have also conveyed to the Co-operators an illustration of a part of the work which is being consistently carried on by the Saskatchewan Wheat Pool Organization toward agricultural welfare. Finally, they are a valuable aid to farmers in the choice of a suitable variety, as well as furnishing reliable data to our professional advisors in agriculture, upon which they are able to base their recommendations. In this regard it may be mentioned that the Saskatchewan Cereal Variety Committee use the results of these tests with those of the Experimental Stations to formulate recommendations for the different zones. This Committee recently drew up cereal variety recommendations for 1941. These recommendations are now available in published circular from the University Extension Department of Saskatchewan, or your nearest Experiment Station, or the Saskatchewan Department of Agriculture, or the Saskatchewan Wheat Pool, Regina.

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